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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

FIRST STAGE OF LISBON UNDERGROUND

See Page 3

VOL. LXXXII No. 2118 [Registered at the G.P.O. as a newspaper] LONDON, DECEMBER 19, 1959 PRICE NINEPENCE

CURRENT TOPICS

The Trader's Vehicle

SAID the man on the bus, as it threaded its way through a crowded street, "all these lorries ought to be made to deliver to the shops at night." No doubt the thought of the complications and cost had not crossed his mind, but it is symptomatic of a widely-held public attitude and shows the need for the Traders' Road Transport Association to be unremitting in putting forward its own balanced viewpoint. Last week, at the autumn luncheon of the T.R.T.A. London and Home Counties Division, presided over by Mr. F. H. Layton, Mr. R. E. G. Brown, the divisional secretary, dealt with the T.R.T.A. survey of C-licensed vehicles. In our issue of October 24 this was the subject of summary and comment, but some of the new emphasis now given to it is worthy of record. The charges usually levelled at the C-licensed operator were that they had no regard to costs, indulged in empty running, went too far and, anyway, transport managers were empire builders, said Mr. Brown. The need for the T.R.T.A. to face such insinuations was the background of the decision to make the survey. Some 9 per cent of the ancillary users' fleets took part, or 98,340 vehicles, with a higher percentage in the heavier vehicles to which greatest criticism is directed. Comparisons with A and B licensed fleets, as made in the second Ministry of Transport survey, were not valid. The C operator covered mixed needs, over half the fleets were specialised vehicles for one trade or another and 15 per cent were engaged in service rather than for carrying goods, carrying fitters or demonstrators and their gear. Special types of vehicles numbered one in four and helped cope with the problem of handling goods in a continuous process, which was no longer "door to door, but moved from the beginning of manufacture to the place of consumption."

Reasons for Use

FIGURES now backed claims formerly made as to reasons for using vehicles. Speed of delivery and certainty of timing scored highest, but the use of the driver as the firm's representative rated high and avoidance of damage by using special vehicles for special traffics was important. The cost to the trader of transport was not the cost of doing it but the cost of failing to do it properly. The benefit of advertising on vehicles to couple up with press and television advertising could not be over-rated. To cover returned empties the return load statistic was on capacity and not weight—and then only 17 per cent of vehicles came back entirely empty. But if specialised vehicles, which, like the tanker at sea, were expected not to have a full weight return load, were eliminated, then only 8 per cent came back entirely idle. It was also important to note that only 17 per cent of vehicles went beyond the 75-mile radius—the proportion was greatest for the classes of vehicle where most specialisation took place. For vehicles going beyond the 75-mile limit empty loading was only 22 per cent. Mr. Brown concluded by warning members against allowing the criticism bound up with the massive problems of the railways from being allowed to become mingled with criticism arising from traffic congestion problems.

Road Research in 1958

COMMENDATION of the Road Research Laboratory, Department of Scientific and Industrial Research, by an all-American sub-committee of a conference on skidding held in the United States is mentioned in *Road Research 1958*, which was published this week by D.S.I.R. for H.M.S.O., price 5s. 6d. (99 cents in U.S.A.). The sub-committee urged all countries with extensive road systems and considerable road traffic to give serious consideration to setting up similar organisations to that of the United Kingdom. The five lines of research being given special emphasis at the Road Research Laboratory as the result of recommendations by the Road Research Board are the relation between the benefits from road improvements and their cost; traffic capacity; crash injury research; study of means of avoiding slipperiness in road surfaces; and pavement design. The Board draws attention to the fact that results of road research take time to achieve; a period of major activity on a subject is followed by observation and the collection of statistics, a process that cannot usually be hurried. It also refers to the shortage of traffic engineers qualified to assist in planning road programmes and commends the expansion of post-graduate schools in highway engineering at universities and recommends that these and other activities in this field should be extended. The Director of Road Research, Dr. W. H. Glanville, describes the work of the laboratory during 1958 in his report. A study of the economics of the London—Birmingham motorway indicated a saving in 1960—the first full year of operation—of between £2·3 million and £3·5 million, representing a return on capital investment of 10 to 15 per cent. Extensive space is devoted to the work on skidding, which showed that more-recent cars, with higher-powered engines, were more liable to skid and that treatment of the road surface at skidding-accident sites had brought a marked reduction of accidents. A study of the properties of rubbers had suggested the possibility of producing tyres with better skid-resisting properties on wet surfaces. Other safety investigations had indicated that the reflecting power of many rear reflectors was very poor and that the introduction of a 30-m.p.h. speed limit in Northern Ireland had saved about 350 personal-injury accidents in six months.

LEADING FEATURES IN THIS ISSUE

Portrait PAGE

The late Mr. R. F. Harvey, M.B.E., M.I.Mech.E., M.I.Loco.E. 9

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Some Signs of Hope

PUBLICATION recently of the report and accounts of Coras Iompair Eireann provided the first opportunity to see what had been achieved by the new board of the undertaking which held office for the last seven months of the year to March 31, 1959. In truth, however, it is hardly reasonable to deduce very much since the new policy for development to accord with the task inherent in the 1958 Act was not introduced until January and could have had only a very limited effect in the three months of the financial year that remained. Comparison with previous years is complicated by the absorption of the undertaking of the Great Northern Railway Board within the republic. Loss on railway working increased by £149,000 to £1,169,065 and there were also deficits on the Galway—Aran Islands vessel, canal working and on docks, harbours and wharves. The balance on road passenger services, due partly to increased fares, rose from £389,517 to £743,412, while road freight working and hotels, refreshment rooms and restaurant cars contributed some £3,000 and £4,500 more than in the previous year. The effects of the wet summer were apparent particularly in the railway passenger figures for, although receipts rose, the passengers were fewer. This applied also to road passenger services other than tours and private-hire work and the marked improvement was largely attributable to the reduced maintenance costs brought about by the lower average age of the fleet. The fact that the financial loss was £789,157 less than the previous year was, at least, hopeful.

International Goods Convention

A SIMPLIFIED customs procedure for British road goods vehicles operating in certain European countries comes into force on January 7, 1960. The United Kingdom has now ratified the customs convention on the international transport of goods under cover of T.I.R. (Transport Internationale Routier) carnets, as was recorded briefly in a recent issue. The convention reduces customs formalities for road vehicles carrying goods across more than one frontier. At present goods being exported by road vehicles or container are always subject to examination by the customs of the exporting country and by the customs at each frontier crossing. For goods sent under the convention the customs will normally inspect only in the countries of origin and destination, and not in other countries en route. The T.I.R. carnet will also serve as a bond, and the carrier will not be subject to the payment or deposit of duties en route. The countries to which U.K. hauliers will be able to go under T.I.R. carnets are Austria, Belgium, Denmark, France, Federal Republic of Germany, Italy, Luxembourg, Netherlands, Sweden and Switzerland. Before vehicles can be used under the T.I.R. scheme they must be approved as fulfilling the technical conditions laid down by the convention. The Ministry of Transport is the approving authority for the United Kingdom. Particulars of the approval scheme and of the organisations authorised to issue T.I.R. carnets can be obtained from the Ministry or from any Traffic Area Office or from H.M. Customs and Excise, Kings Beam House, Mark Lane, London, E.C.3.

Another Revolutionary Engine

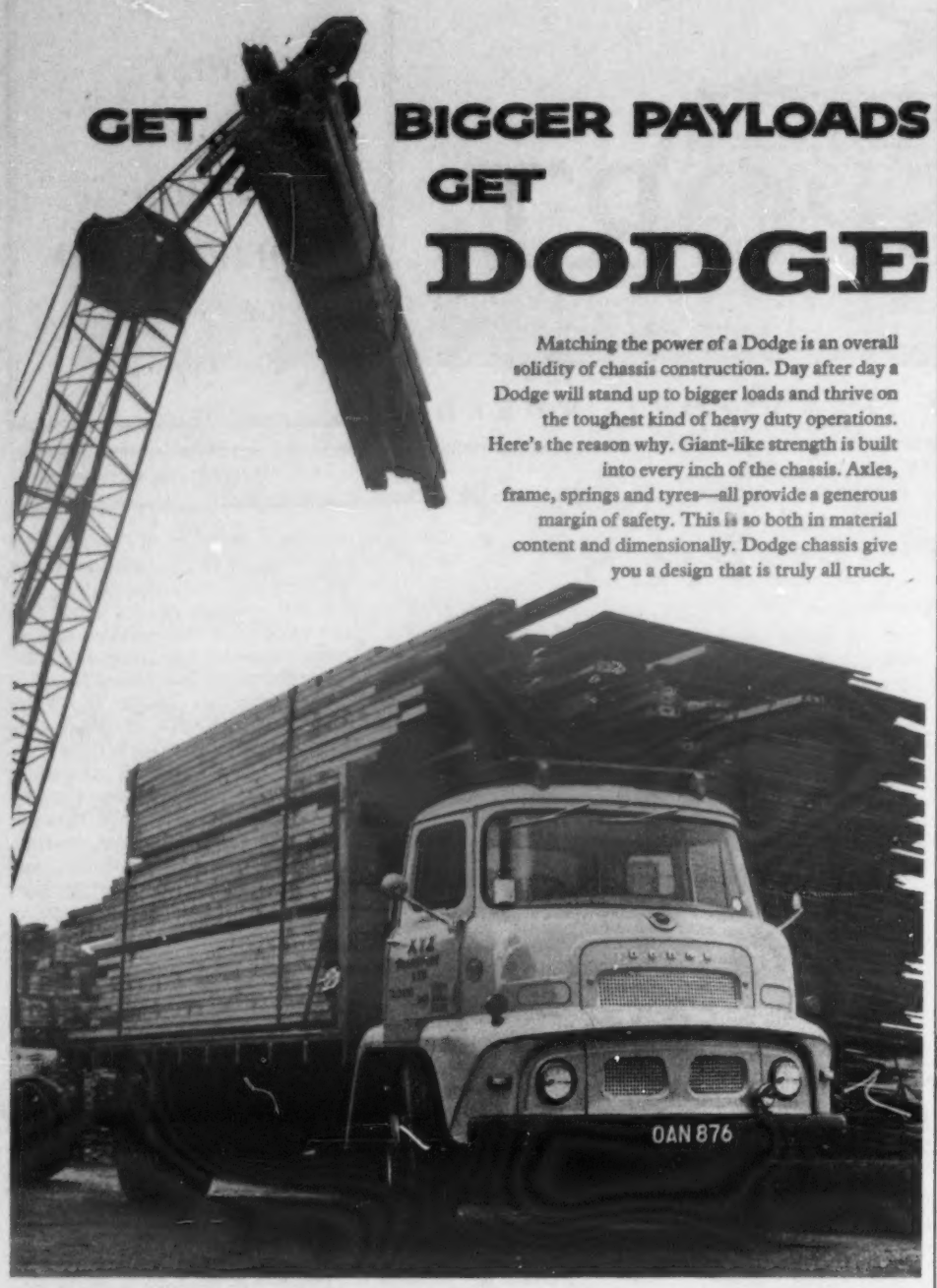
NEWS from the United States of America and West Germany of a radically new type of internal-combustion engine having only two rotating and no reciprocating parts will have awakened memories of many earlier attempts at simplification of the Otto cycle. Of these, apart from the gas turbine, only the loop-scavenged two-stroke engine, having but three moving parts in its simplest form, has found a permanent place. Others, such as the Aspin engine of the 1920s and the Bradshaw rotating-piston design of more recent date, have shown great promise in the development stages and in small experimental sizes made by hand, but have always fallen far short of promise when translated into practical size and quantity production. Gas sealing has usually been the Achilles heel of rotary heat engines and it appears that a solution to the problem might have been found in the latest contender—a design by Felix Wankel now taken up by N.S.U. Werke, in West Germany, and the Curtiss-Wright Corporation, in the U.S.A. Both companies contemplate commercial production, Curtiss-Wright "next year" with engines between 100 and 700 b.h.p. for automotive, marine, aircraft and industrial applications, and N.S.U. "after further development" in sizes up to 100 h.p. Mechanical details are at present being withheld apart from the facts that a carburetted charge is spark-ignited and the engine comprises basically a rotor and a shaft (called a crankshaft in the reports—but this is apparently a misnomer), the rotor following an eccentric course through the action of cams to provide a four-stroke cycle and three power impulses for revolution. Excellent specific power and fuel consumption are claimed for the N.S.U.-Wankel engine. For example, a 125-cc. unit built by N.S.U. weighs only 20 lb. and develops 29 b.h.p., while a 100-h.p. cast-iron unit shown recently by Curtiss-Wright weighs 100 lb. and is claimed to have a specific petrol consumption of 0.45 lb. per b.h.p.-hr. News of further development will be awaited with interest, particularly of how gas-sealing problems have been overcome in engines built on a normal commercial production line; information on the weight and complexity of gearing necessary to reduce what must be a high rotational speed to a usable level and on practical speed range are also pertinent to road vehicle interests.

Dover—Ostend Improvements

DURING the past few years the Belgian Marine has made a number of improvements on the Dover—Ostend service, including completion of its building at Ostend quay, where there are spacious halls for passport and customs examination with wide corridors enabling the easy and rapid flow of passengers. Then there was construction of the car ferry station; the setting up of a buffet where motorists can obtain light refreshments and cold meals; the widening of the quay to facilitate the manoeuvring of motor cars; the opening of a booking office at the quay entrance for the sale of car tickets and tickets for accompanying passengers and, latest of all, the order to be placed for a third car ferry. The mailboat service is being improved by extension of covered space for second-class passengers on the ships. A floating dock is now available at Ostend for the maintenance of the vessels. Up till now, they had to go to Antwerp for careening, resulting in considerable idle time. Henceforth the Belgian Marine will have a free hand in establishing a programme of careening, and, in some cases of urgent repairs, will be able to put one of their boats immediately into the floating dock. This will improve maintenance and flexibility.

More Food for More People

IMPROVEMENT of restaurant service on the mailboats is also one of the many preoccupations of the Dover—Ostend line. An experiment was recently carried out in closing the second-class restaurant and opening the first-class restaurant to all passengers. As this proved to be successful, the Belgian Marine has decided to do away with the second-class restaurants and to convert them, in readiness for next season, into a snack-cafeteria. This new service will serve more than one thousand passengers, whereas the former restaurant could seat only one hundred. The second-class passengers will in the future have the choice between the first-class restaurant and the snack-cafeteria. Whilst prices in the first-class restaurant will remain unchanged, specialities more in keeping with English taste will be offered in the snack-cafeteria at prices varying from one to three shillings, service included. To do this, large refrigerated counters will be laid out and these will be staffed by women who have been specially trained for the work.



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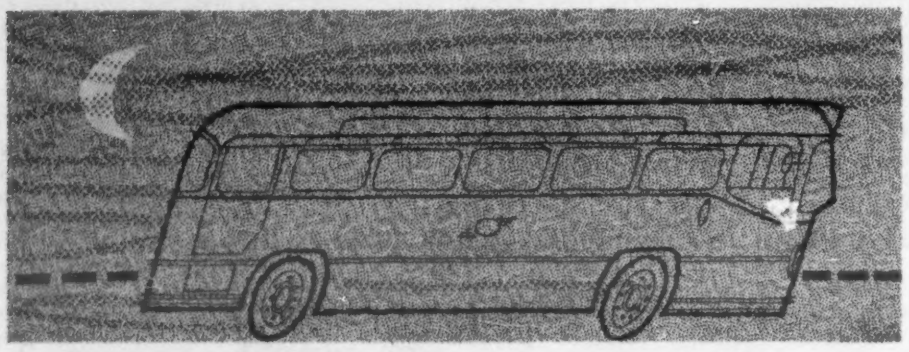
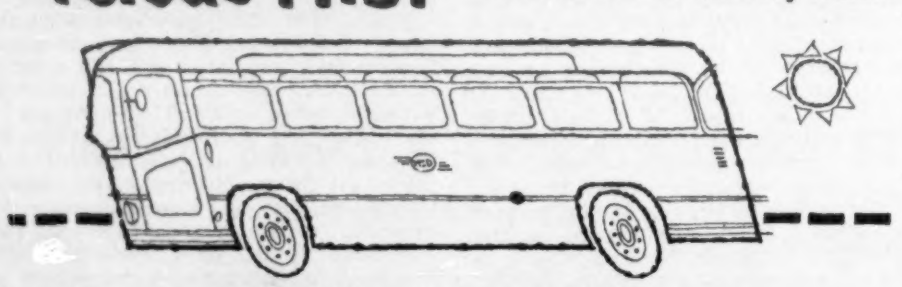
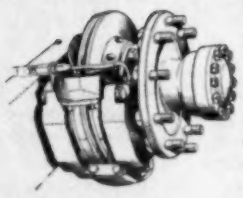


Ferodo First — on Britain's first motorway coaches



The Midland Red Bus Company's new motorway coaches are built for the long-distance conveyance of large passenger and luggage loads, at constant high speeds.

In designing such fast and heavy vehicles (gross weight: 9½ tons) safe, sure braking was of course a prime consideration. The Birmingham and Midland Motor Omnibus Company, designers and builders of the new coaches, found that the Girling Disc Brakes and Ferodo Pads used on the standard coaches of the Midland Red omnibus fleet gave the extreme braking efficiency necessary—even though the wheel arrangement of the new coaches takes the brake out of the air-stream, setting brake pads a much sterner test.



Trials where a fully laden prototype coach was braked from 70 to 30 mph every 1½ minutes for 2 hours showed complete braking efficiency and absence of fade.

Working in conjunction with Girling, Ferodo technicians and scientists developed these specialised brake pads, which yet again prove the superiority of Ferodo friction materials.

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9/48

MODERN TRANSPORT

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

★

Traffic Congestion

PARLIAMENTARY jokes often rebound on their propounders and so it was in last week's debate on traffic congestion. Mr. Wedgwood Benn, in a motion for the Opposition, regretted the failure of the Government to tackle the growing problems of traffic congestion—although it was during the Opposition's term of office, 1945-51, that the stage was set by the meagre expenditure then countenanced on highway projects. However, it was a day of good humour and Mr. Ernest Marples, Minister of Transport, in moving an amendment to take notice of the "growing volume of traffic for which provision must be made" showed the true facts about construction and, dealing with existing roads, could not refrain from pointing out that both the Leader of the Opposition (Mr. Hugh Gaitskell) and the member for Ebbw Vale (Mr. Aneurin Bevan) had helped to strangle London's traffic by parking in unauthorised places and had had their cars towed away. Nevertheless Mr. Wedgwood Benn performed a valuable service in drawing attention to mounting congestion and in bringing the notice of more people than read Road Research Laboratory reports to the fact that congestion already costs us £500 million annually; the cost is now growing at the rate of 14 per cent a year. There had been a growth in traffic since 1946 at a compound interest rate of 8.2 per cent and pressure on the existing road system had been perceptible since 1953. He felt there had been unjustifiable complacency about the situation for the past eight years and suggested that the Ministry of Transport was still working on inadequate forecasts of the growth of traffic. There were three million new vehicles and 291 miles of new road—or six inches of road for every new vehicle since 1952. The present road building campaign had been compared with that of the Romans—if they had followed the same scale of construction for the 20,000 vehicles of their day they would have left Britain with only 2½ miles of Watling Street built. He suggested comprehensive action on London traffic under a "commissioner for Metropolitan transport."

Public Transport and Public Interest

LEAVING improbable statistics on one side the Minister of Transport dealt realistically with the situation, looking forward to the fourth quarter of this century and the first quarter of the next. In 1960 there would be 5½ million private cars; the estimate for 1975 was 13½ million. At present 94 per cent of the London commuters used public transport and only 6 per cent cars. "Imagine what it would be like if the figures were reversed." It was therefore imperative not to allow public transport to disintegrate as it had in Los Angeles, which now, with a smaller population than London, stretched over 130 miles. He asked members for their views on setting up a long-term study group before disaster overtook us. "We must come to terms with the motor car without letting it destroy our way of life," he said. Casualties had increased, taking October, 1958, and last October, by 17 per cent for an 11 per cent increase in traffic—in the next 50 years, even on the present rate, there would be 15 million persons injured and 300,000 killed. Turning to the short term, the Minister stressed the comparative ease of building a motorway in the country as distinct from relieving urban congestion. Limiting factors were not only money, the resources of industry, and the technical plans. There were the limitations Parliament had deliberately imposed upon the Ministry and the authorities to safeguard the rights of the individual. Members could not have those limitations and expect excessive speed from the Minister.

Practical Plans

FOR making better use of existing roads everyone must sacrifice something; only thus could order replace chaos and discipline be substituted for anarchy. A survey should be made of any given city with free traffic flow its first object. If any space were left it should be given to kerbside parking and loading. Nothing caused more confusion than bad signs and he would like parking, loading and "keep moving" spaces clearly marked. The day of the long-term parker—eight hours or more—was virtually over. He had no right to strangle the area in which he earned his livelihood. There would have to be off-street parking and he was negotiating with British Railways to ensure that on the periphery of London and other places adequate car parks would enable people to come to the periphery and then enter the centre by public transport. He believed enforcement of rules must be swift and salutary—one selfish motorist made everyone else selfish—and he asked for views on traffic wardens, pointing out that we virtually had them in parking meter attendants. He wanted marked traffic lanes for special classes of traffic, more one-way streets and a reduction of permissible right turns—something in that line had been done in Old Kent Road (at the Bricklayers Arms junction). The Minister also suggested more throughways where parking was taboo in the peak and tidal flow, instead of parking, over such places as Waterloo Bridge, where by removing the central lamp standards there could be five traffic lanes, four being devoted to northbound traffic in the morning and four to southbound movement in the evening. He would listen to traders, but everyone had to make a contribution. He was out to stop U-turns and he thought the suggestion for unified traffic control was the right thing.

Cost of Off-Street Parking

MANY good points were made in a debate which, despite a suggestion for free rail travel, was a model of common sense and included an extraordinary number of maiden speeches. Mr. Hugh Molson, an old hand, referred to the misfortune that a motor car could be left unattended whereas in horse days someone who wished to leave a vehicle standing on the street had to have somebody to hold the horse's head while it was waiting. Whereas over a million commuters used public transport some 70,000 used private cars and it was intolerable that the whole of the traffic of London should be held up by 70,000 people who preferred to use their own cars but were not prepared to put them in garages, which were not all full. It would cost £45 million to provide off-street accommodation for even 30,000 long parkers. If the car population went up, with its vast occupancy of road space compared with public transport, the bill for off-street parking would be multiplied and the work would involve the demolition of London. The users must pay for their facilities. There was a good deal of admiration for what had been done in the "pink zone", disappointment that the Royal park car parks must be given up after January 16 and powerful support for the Victoria Line as a means of relieving surface congestion.

MODERN TRANSPORT has an arrangement with Reuter's Trade Service whereby publication is made in this newspaper of all essential news from all parts of the world concerning traffic and transport by rail, road, sea and air and allied interests.

NEWS SUMMARY

SOME 16 London Midland Region stations which were scheduled for closing have been reprieved.

The Port of New York Authority has issued a new film, *The Fabulous Decade*, which shows recent progress in provision of port and transit facilities in New York and New Jersey.

The first Rolls-Royce RB141 by-pass turbojet has satisfactorily completed its first test run. (See page 9.)

The Leyland group is launching a campaign to sell lorries in the United States, following its success in the supply of bus engines to operators in that country. Closer association is also being arranged with the builders of the Spanish Pegaso heavy vehicle and bus range. (See page 6.)

The first of 76 Metropolitan-Cammell tube trains entered service on the Piccadilly Line of London Transport on December 14.

We record with deep regret the death of Mr. R. F. Harvey, formerly chief operating and motive power officer, British Railways. A portrait and obituary appears on page 9.

British European Airways has agreed to defer the introduction of its de Havilland Comet 4Bs on revenue-earning flights until April 1. Its pilots have been seeking increased pay and revision of proposed hours of duty and other conditions. If no settlement has been reached by March 31, the outstanding issues are to be referred to arbitration.

The Minister of Transport has invited tenders for the construction of the Medway bridge which will carry the M2 motorway across the river near Rochester. The bridge will consist of three river spans of 313 ft. (two) and 500 ft. and 17 viaduct spans. Tenders have also been invited for two bridges over the railway between Sole Street and Rochester.

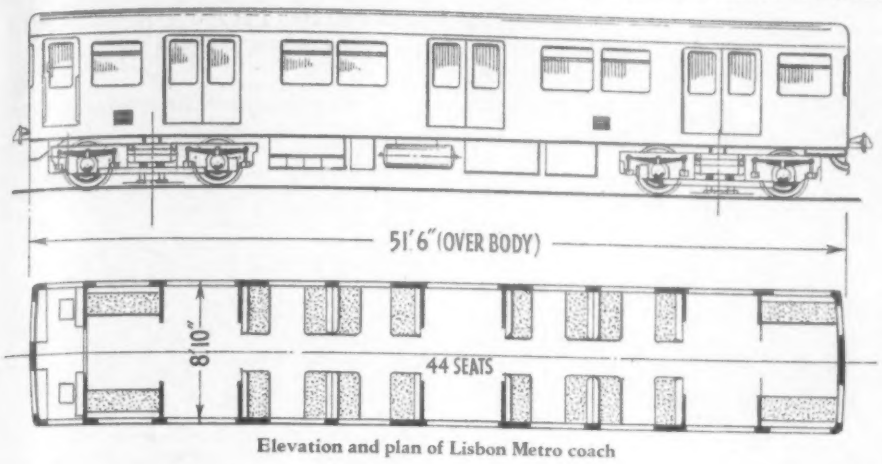
Sabena has announced that it is to buy four Sud Aviation Caravelle 6 jet air liners for its European and Middle East services and that it has taken an option on a further four.

EUROPE'S NEWEST METRO

To be Opened in Lisbon

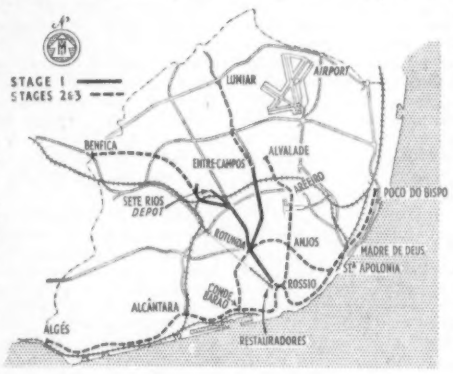
FIRST STAGE OF COMPREHENSIVE PLAN

EARLY next year it is anticipated that there will be opened the first section of the eagerly-awaited Metropolitano de Lisboa. With this, the Portuguese capital will join the select group of cities whose citizens enjoy modern rapid-transit facilities. The relatively late arrival of below ground rapid transit on the Lisbon scene is partly due to the excellence of the capital's surface transport system, provided by the British-owned Lisbon Electric Tramways, Limited.



Elevation and plan of Lisbon Metro coach

But the steady expansion of the city, coupled with increasing traffic congestion in Lisbon's narrow streets, caused the municipality to draw up a scheme for underground railways, and four years ago work began on the first part of a Metro system that will eventually total some 25 miles. The first section, now completed, extends from Restauradores to Entre Campos (Line 1), with a branch from Rotunda to Sete Rios (Line 1 bis), and serves the northern and north-west suburbs; later sections will run to Alvalade, Alcantara and Madre de Deus, and plans also exist for a semicircular belt line and for suburban extensions to Benfica, Lumiar, Alges and Poco do Bispo. The section now open totals 4.3 route miles (7 km.). It is of conventional construction, although pneumatic-tyred operation was considered.



Lisbon Metropolitan layout

Most of the line is in shallow double-line tunnel beneath the streets, constructed by the cut-and-cover method and following the contour of the ground. Tunnelling was necessary only beneath the high ground near the Parque, where the line runs in twin single-line concrete tunnels. Special work includes a non-conflicting junction at Rotunda, where the northbound Entre Campos line is carried over those to and from Sete Rios, and the under-pinning of the Great War Monument in the Avenida da Liberdade, whose 600 tons are now carried on a stout reinforced-concrete sub-surface bridge. Near Picoas Station the Avenida Fontes Pereira de Melo, with the Metro, crosses over the Rua S. Sebastião on a bridge, and Metro passengers will catch a 20-ft. glimpse of daylight as the train crosses the gap, but apart from this and the depot the entire system is below ground. Many diversions of tramway and bus routes were necessary during construction.

Motor coach at Sete Rios depot; Ruhrtaler diesel locomotive for depot shunting; Parque Station before opening; electric train at Rotunda during crew training

Stations

The line now open has 11 stations, spaced at roughly 650-yard intervals. Their depth rarely exceeds 22 feet; short flights of stairs lead down to a booking hall over the tracks, and further stairs descend to the platforms. The entrances are marked by a red neon "M," and maps of the system and the surrounding streets are displayed in each booking hall. The platforms are only 130 feet long (about 2½ car-lengths) and will require extension later if four-car trains are run. The normal platform width is 13 feet, and each station has a distinctive colour scheme, with unglazed tile walls; a supervisor's box is let into the wall mid-way along each platform.

All stations have fluorescent lighting, and the excellent ventilation system will be most welcome in the heat of summer. Special layouts were adopted at Rotunda station, which is of four-car length with entrances at each end, and at Parque station on the deep-level section, which has a surface building and two opposed banks of escalators. The escalators ("escadas mecanicas") will normally run at half-speed, changing to full speed when a passenger steps on past a photo-electric cell.

Track

The track is of 4 ft. 8½ in. gauge, and arranged for left-hand running; in the double-line tunnels, the tracks are set at 10 ft. 6 in. centres. The track is carried on creosoted Leiria pine sleepers and ballasted, except at the stations, where the rails are on pine blocks set in concrete. The track is welded throughout except at junctions and sharp curves; rail-lubricating equipment is incorporated in the bogies of certain cars. The curves are super-elevated to allow a top speed of 37½ m.p.h., but can be raised at a later date to allow 45 m.p.h. Current at 750 volts d.c. is taken from a lateral third rail, as in Paris, with top contact; the first train was temporarily fitted with under-running shoes and tested on the Hamburg Elevated.

The main depot and workshops, designed to cater for the entire future network is located at Sete Rios alongside the suburban line of the Portuguese Railways, though the difference in gauge prevents physical connection. The layout is linked by a single-line tunnel with Palhavã Station on Line 1 bis. Most trains will spend the night at Sete Rios terminus, where inspection and cleaning facilities are provided in an enlarged section of tunnel, with a small workshop for minor repairs. Above ground are the overhaul works and paint shop, a separate stores building, the permanent way yard, siding accommodation, and a turntable on which cars can be turned, each car having a driving cab at one end only. The third rail is limited to the access road and a single test track, fenced off from the rest; elsewhere, cars will be moved by a Ruhrtaler diesel locomotive.

Signalling

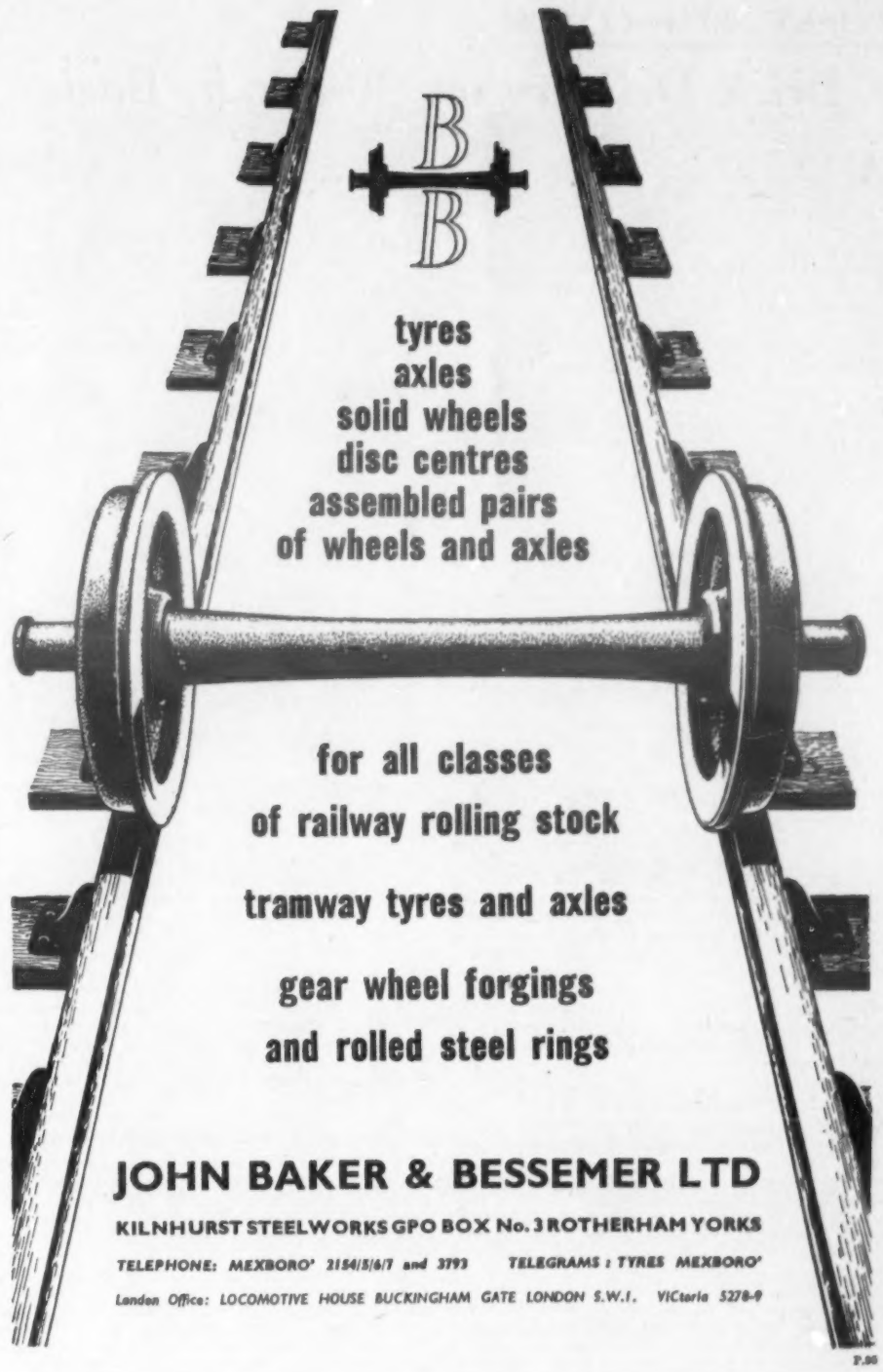
Signalling is automatic and actuated by a.c. track circuits, except at junctions. The signals are two-aspect colour lights with train stops, spaced to allow a 90-second service of four-car trains; the red and yellow aspects are replaced by blue and white for shunting movements. Control panels are provided at Sete Rios, Palhavã, Entre Campos and Rotunda, and train describers are provided on the northbound platforms at Restauradores, Avenida and Rotunda.

The main contractor for the substation equipment and cabling is the General Electric Co. Limited, the only British manufacturer participating; details of the equipment supplied appeared in MODERN TRANSPORT for April 14, 1956. Power is taken from the national supply at a main substation near Rotunda, and distributed to traction substations, of which only one is required at present; this has two 1500 kW rectifiers with transformers. Power for auxiliaries, including a comprehensive pumping system, is supplied from the main substation, which also has a standby power source consisting of a 1000 h.p. Ruston-Paxman diesel engine driving a G.E.C. alternator; this can supply sufficient power to bring the trains at reduced speed to the next station in the event of outside power failure.

Rolling Stock

For the first stage 24 cars have been obtained from Linke-Hofmann-Busch, with Siemens-Schuckert electrical equipment. All are 16 metres long and 2.7 metres wide; they weigh 34 tons and

(*Continued on page 7*)



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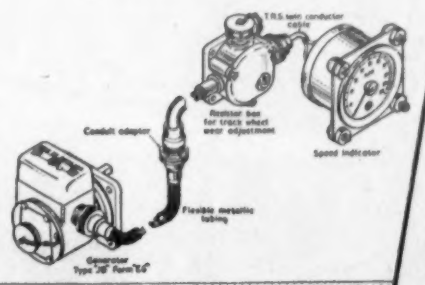

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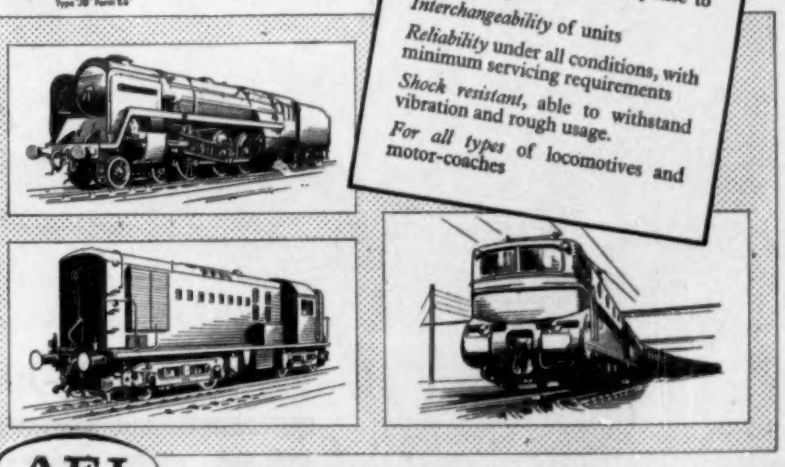

AEI **Associated Electrical Industries Ltd.**

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LORRY—BUS—COACH

Brick Delivery on 30-m.p.h. Basis

AS part of an agreement reached between the Pressed Brick Makers Association and the Transport and General Workers Union the scheduled speed for heavy vehicles covered by the negotiations will be raised to the 30-m.p.h. basis. Among the operators concerned are the London Brick, Marston Valley and Eastwoods companies. Drivers of lighter vehicles will also have their wage rates increased.

Last Petrol Double-Deckers

THE last petrol-engined double-deck buses in municipal service in England, six A.E.C. Regents, are to be replaced next spring by three diesel double-deck buses. Operated by Morecambe and Heysham Corporation Transport Department, the six A.E.C. buses have recently returned an average fuel consumption of 3.8 m.p.g.

Hitch in Bus Wage Talks

THERE was an unexpected snag when the claim by municipal bus workers for an additional £1 on basic weekly wage rates was brought before the N.J.I.C. The employers' side found that it lacked a quorum. Consideration of the claim was, therefore, adjourned until January 14. The unions concerned were this week to argue the parallel claim on behalf of employees of provincial companies. The claim on London Transport was presented on December 4; it would cost the employers £2½ million if conceded in full. All three claims cover maintenance as well as operating staff.

E.Y.M.S. "Beverley" Roof to Vanish

FUTURE deliveries of double-deck buses to East Yorkshire Motor Services, Limited, will have a normal roof contour, made possible by the lowering of the roadway under the Gothic arch at Beverley. Because of the importance of this route it was deemed advisable that all double-deckers in the fleet should have a special roof section, egg-shaped, i.e. heavily crowned on the centre line. Mr. C. Rawling, company secretary, says that it is impossible to estimate what the additional expense has been over the 30 years of covered-top double deckers but it is of interest to know that when the Beverley arch was built, in 1409, it cost £96 7s. 4½d.

Keeping Food Hot in Vans

VANS operating the "meals on wheels" service in the Royal Borough of Kensington now carry electrically-heated containers with food packed in foil. Previously the best expedient was to carry the meals in a hot-water jacketed container, but last deliveries lost most of their initial heat. The new container, of G.E.C. manufacture, is constructed of polished aluminium with an inner and outer case lagged by an insulating material. It is preheated by a 250-watt element operating at mains voltage and the maintaining heat in transit is supplied by a 40-watt element operating on a 12-volt vehicle battery. This requires charging every fourth day or so. The interior food holding trays and the vehicle electrical system were supplied by the Rootes Group.

Frauds in Tanker Filling

CHARGES of the theft of 9,900 gal. of petrol from the I.C.I. filling station at Billingham resulted in the appearance of 10 men and a woman at Stockton on December 11. They were accused of stealing or receiving the petrol. All but two pleaded guilty. They were three Billingham I.C.I. petrol tanker fillers, 10 petrol company drivers and seven garage proprietors and retailers. It was said that the theft would not be apparent because the station lost 50,000 gal. a month through vaporisation. Between 1,200 and 1,500 tanker compartments were filled each week at the station and it was said the dipstick readings had been falsified on two tankers each week. The court was told that the fillers had an arrangement with the drivers by which extra petrol was put in their tankers, the fillers receiving £5 for every 100 gal. The drivers in turn sold the petrol to the retailers, in some cases for 2s. 6d. a gal. Total fines imposed were £1,040.

Plastics Laminated Steel Body Lining

AFTER rigorous testing, extending over 11,000 miles and eight months, of a refrigerated meat container specially lined with Stelvetite (plastics laminated to sheet steel) it has been proved conclusively that this new material makes ideal panelling for storage and handling of perishable food, says the manufacturer. The container, on a 7-ton Ford Thames Trader, fitted with Stelvetite as an experiment by the bodybuilder, Walkers and County Cars, Limited, was tested by Meatransit, Limited, on regular daily return runs of 120 miles to Haverhill, Suffolk, carrying full loads of frozen and chilled meat and home-killed pork, and occasionally frozen vegetables. The three walls of the van and the double rear doors were lined with 16-gauge white, non-toxic finish Stelvetite panels, riveted to the body framework. The van was given normal, everyday use, in all types of weather, with the food cargo hung, stacked, loaded and unloaded, in the usual way: the interior of the van was cleaned daily after use by hosing down with hot water.

Bombay Fares

AN increase in bus and tram fares has been proposed by the municipally-owned Bombay Electric Supply and Transport undertaking which runs Bombay city's transport services. Its budget estimates submitted to the municipal standing committee are designed to increase the undertaking's revenue by Rs.4,500,000 in a year. About 1,500,000 people use the undertaking's 800 buses and 275 electric trams daily. At an estimated income of Rs.129,575,000 the undertaking will have Rs.1,079,840 as a surplus after an expenditure of Rs.128,495,160. The general manager, Mr. R. C. Joshi, said that the undertaking had a statutory obligation to pay the municipal council an annual contribution of Rs.4,000,000.

Large Food Cold Store Opened

ROAD and rail connections are provided to a 4,000-ton capacity cold store for frozen foods opened at the Kirkby (Liverpool) factory of Birds Eye Foods, Limited. The normal chamber temperature is −5 deg. F., but a temperature of −20 deg. F. can be maintained. The rail siding covers 300 ft. of loading bank and road vehicles utilise the remaining 125 ft. The supervisor, in addition to being able to see the whole bank, has an intercommunications system with outlets at various points along it. Rail traffic is dispatched in the fleet of Birds Eye refrigerated containers. The new cold store is in addition to existing capacity for 1,500 tons of products.

Unloading into the new store is through a Miniveil air curtain, supplemented by a pair of rubber swing doors. This arrangement prevents obstruction on the factory side by airlocks, etc. Loading out to the bank, however, is through two non-insulated vapour proofed airlocks with rubber swing doors at both internal and external door openings. Personnel doors are provided alongside each main door and an emergency exit is provided.

Two British vehicles at work for Swiss owners: a Karrier delivering beer in Liestal—the trailer carries ice—and an A.E.C. Mandator with native bodywork employed by a road carrier of La Tour-de-Trème

Bus and Coach Developments

Blackpool Corporation proposes revision of certain of its services which would be replaced by new routes.

Bath Tramways Motor Co., Limited, applies to revise various Bath city services.

Athelston Garage, Limited, Malmesbury, seeks the licences of Mrs. D. M. Norton.

Yorkshire Woollen District Transport Co., Limited, applies for excursions and tours from Cleckheaton and Heckmondwike licensed to F. Oade and Sons, Limited.

★

DISTRIBUTION DEPOT FOR ALUMINIUM INGOTS

Waterway Connection

TO handle the bulk of virgin aluminium and alloy ingots imported into Britain by Alcan (U.K.), Limited, a new distribution depot has been erected at Redstone Wharf, Stourport, on the Severn, to replace a depot at Hockley, Birmingham. The river Severn provides the means of transport for most of the incoming ingots. They arrive by barge along some 80 miles of waterway from Avonmouth, having travelled from Canada to the industrial heart of Britain entirely by water. From the depot the ingots are dispatched by road to the company's own works at Handsworth and to other users all over the country, including foundries, paint makers and foil rollers.

The main building, which is appropriately of aluminium sheets, was supplied by Coseley Buildings, Limited, Wolverhampton. The framework of galvanised steel is of the Coseley standard pattern, which has particular advantages for a storage building since it provides a clear headroom which permits high stacking of bundles of ingots. The building is 125 ft. long by 75 ft. wide and is 15 ft. high to eaves. It is used principally for the storage of alloys. Virgin metal is, for the most part, stored in open compounds surrounding the building. The latter is fitted with Cerapane roof lights supplied by Saunders Roe, providing an unusual degree of light. When completed early next year Redstone Wharf will have its own unloading quay served by a crane.

Frameless Buildings

Apart from the supply of this building, Coseley has a further link with Alcan. In 1957 the Coseley group acquired the rights to make and market the Kingstrand range of aluminium buildings which were first developed in Canada by Aluminium Laboratories, Limited, the research and development organisation in the group to which Alcan belongs. Kingstrand buildings are frameless, deriving their strength from a specially devised corrugation of the aluminium walls and roof. Designed primarily as low-cost housing for construction camps, under-developed areas and as emergency housing, the system has also been adapted for use as schools, munition storage huts and many other purposes.

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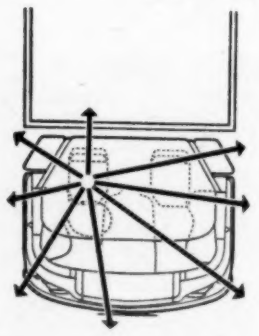
*Ask your dealer for full details



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TRANSPORT HISTORY FOR TRANSPORT MEN

Bearing on Policy Making

IT would be a mistake to suggest that history repeats itself; it never does, said Mr. R. M. Robbins, secretary and chief public relations and publicity officer, London Transport Executive, in a paper read before the Metropolitan section of the Institute of Transport. The circumstances surrounding historical situations were always different, the personalities involved were different, and the spirit of the age—its unspoken assumptions—was normally different; so it was never any use looking to history to produce the solution to any problem that confronted us now. It would not be too difficult to find resemblances between the events of the freight rates dispute of 1893 and the London passenger fares rumpus of 1952; but the differences were certainly more important.

The relations of the three parties—provider, Government and user — had been completely changed since the nineties; the machinery for fixing passenger charges under the 1947 Act bore no resemblance to the ancient and even more cumbrous methods applicable to goods rates in the earlier case; there was an officially constituted users' committee in the later case; and so forth. But the biggest difference of all was that in the early nineties prices were falling (though not railway wages); in the fifties, both were rising. Historical parallels were generally misleading, and except in the broadest sense it was usually wrong to think that we had been here before.

Skill and Judgment

"Except in the broadest sense": how important was that qualification? It really meant everything. "We say in this Institute that transport is at once an art and a science. I take it that we mean by those expressions that, while transport comprehends certain techniques having quantitative characteristics capable of precise application, there is also an element of art—that is to say, skill and judgment in dealing not only with things but also with human beings. This is where the history of the subject comes in. The Institute has recently given notice that the history and development of transport is to be included at a future date in its syllabus of examination for corporate membership.

"If I may say so, this seems to me wholly right; for it will create a much better balance in the syllabus than that which now exists between the subjects requiring exact information and those where the thinking of the student has to be expanded to take account of less precise but not less important considerations. After all, these matters of policy, having regard to many outside factors besides the techniques of transport, are bound to form an important—perhaps a predominant—part of any process of decision in higher transport management; and it is none too early for people at the graduate stage to consider this kind of decision-making in action. I do not think there is any better way to do that than by the study of actual cases in the past."

Common Features

All the different forms of transport had certain historical features in common, continued Mr. Robbins. The first thing about them was that transport was a technique; so the history of each branch of transport was given a certain framework by the technical (and also the geographical) limitations imposed on it. A primary part of its story was the successive stages in technical evolution by which these limitations have been mitigated or removed. But that, whilst fascinating in itself, was not, as some people mistakenly thought, the whole story; it was the "how," no doubt, but not the "why."

The "why"—the motive behind the origination and progress of the different transport agencies—had to be found in the thoughts and decisions of men, as individuals or in groups; the techniques were not called for, the geographical obstacles were not overcome, until the will to find solutions had been formed. It was above all in the study of policies and decision-making that the transport history student found his subject at once intensely interesting in itself and full of material which was permanently relevant. Since it was a subject which was still in some places very obscure, it also had the merit of constantly stimulating fresh inquiry and producing fresh interpretations.

Antiquarianism

"There is a thing about the history of our subject that appears to give rise to discomfort in the minds of practical transport men," said Mr. Robbins. "They have an uneasy feeling that if one studies history one must develop a hankering for the old-fashioned and a desire to retain it, however unsuitable in modern circumstances. I have said before, and I must say again, that I think this is a complete misunderstanding. To survey transport with an historical outlook does not mean wanting to retain its historical curiosities in action today. The historical approach is quite different from antiquarianism; indeed, to me it shows more clearly than any argument drawn from present-day circumstances that adaptability to change, and very vigorous change, is the essence of good transport management. The history of canals demonstrates that. Let the antiquarians have their transport museums; I will support them, indeed, but for quite different reasons. But the study of transport history has no necessary connection with the preservation of relics, and it certainly does not lend any support to out-of-date objectives or methods within the industry.

"As I see it, the study of transport history by a transport man will enable him to understand the permanent, underlying features of his own form of transport not merely by description but by analysing it in action at different times and in various situations. The study of transport history will acquaint him with the fundamentals of the relations between the different kinds of transport, and with different interests at home and abroad, and with the public in general; and finally it will demonstrate to him how transport is treated by the state, in different ages and circumstances.

Improving the Manager

"Here in the Institute we believe that good transport managers can be made as well as born—or if not made, at any rate improved. I can think of no subject better fitted for the reflections of the transport student in his twenties than the story of the growth, development, evolution, complication, frustration—in short, the life story of his chosen profession."

Chromium Plating

NEW BRITISH STANDARD FOR IMPROVED QUALITY

A RECENTLY published British Standard, it is hoped, will provide the starting point in a general upgrading of chromium plating finishes. The standard is called *Electroplated Coatings of Nickel and Chromium* and carries the number BS1224:1959. Coinciding with the issue of BS1224, a nation-wide labelling scheme is being launched so that buyers of chromium-plated products will be able to tell whether the plating is up to standard. A third development is the introduction of a new measuring instrument which will make it simpler for platers and manufacturers to check that their products comply with the standard.

The new British Standard is a revision of an earlier specification. The standard has been revised, at the request of industry, as a step towards improvement in quality of chromium plating and an answer to the all-too-numerous complaints about the lack of durability of many plated surfaces. The most important change is a provision for thicker coatings of nickel. With most plated products it is the layer of nickel rather than the top flash of chromium which largely decides the quality and durability of the finish. Until recently nickel has been in short supply but with the end of this shortage there is no longer any reason why an adequate nickel coating should not be applied.

More Stringent Tests

A second important change in the British Standard is the inclusion of more-stringent laboratory tests which plated products must be able to pass if compliance with the standard is claimed for them. Two of these tests are to ensure that chromium plating will stand up to corrosion—a vital factor with, for example, bumpers and other vehicle parts which are exposed to the weather. In all, nine tests are prescribed in the standard. They include the tests for corrosion resistance referred to above, in which plating is exposed to the attack of sulphur dioxide or acetic acid and salt; tests to check the thickness of both the nickel and chromium surfaces deposited on an article; and tests to ensure that the plated finish will not easily peel away.

Platers and manufacturers will appreciate that in gauging the thickness of the layer of nickel which is called for in the standard they can now use a non-destructive instrument developed by the British Non-Ferrous Metals Research Association.

Identification

Identification of products complying with the Standard will be made possible through a labelling scheme which, in the first instance, is being operated by the Mond Nickel Co., Limited. This company, working in close collaboration with the British Standards Institution, will supply labels to platers and manufacturers of plated products who must undertake to apply these labels only to plating which complies with BS1224. The new standard calls for three grades of plating depending on the use to which plated products are put. The Mond labels take this into account.

At this stage, it will be left to platers and manufacturers to satisfy themselves that their finishes are in accordance with the standard. Large-scale buyers (such as motor car firms) will doubtless require samples to be tested before accepting delivery of goods.

Copies of BS1224 may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London, W.1, price 5s.

B.T.C. TRAFFIC RECEIPTS: PERIOD NO. 12—1959

	Four weeks to November 29, 1959			Aggregate for 48 weeks		
	1959	1958	+ or —	1959	1958	+ or —
	(£ thousands)			(£ thousands)		
PASSENGERS						
British Railways	8,935	8,439	+ 496	129,343	127,938	+ 1,405
London Transport						
Road passenger services	4,284	4,184	+ 100	50,657	44,477	+ 6,180
Railways	1,982	1,860	+ 122	21,830	22,519	— 689
Provincial and Scottish Buses	4,206	4,147	+ 59	56,448	55,795	+ 653
Ships	189	190	— 1	7,211	6,616	+ 595
Total Passengers	19,596	18,820	+ 776	265,489	257,345	+ 8,144
FREIGHT, PARCELS AND MAILS						
British Railways						
Merchandise and livestock	8,673	8,404	+ 269	90,841	96,029	— 5,188
Minerals	3,902	3,625	+ 277	40,788	41,709	— 921
Coal and coke	8,794	9,420	— 626	99,847	112,498	— 12,651
Parcels, etc., by coaching train	4,440	4,196	+ 244	49,646	48,755	+ 891
Total Freight British Railways	25,809	25,645	+ 164	281,122	298,991	— 17,869
Others	4,753	4,283	+ 470	51,529	49,858	+ 1,671
Total Freight, Parcels and Mails	30,562	29,928	+ 634	332,651	348,849	— 16,198
Aggregate	50,158	48,748	+ 1,410	598,140	606,194	— 8,054

Comparisons are affected by the London bus strike from May 5 to June 28, 1958

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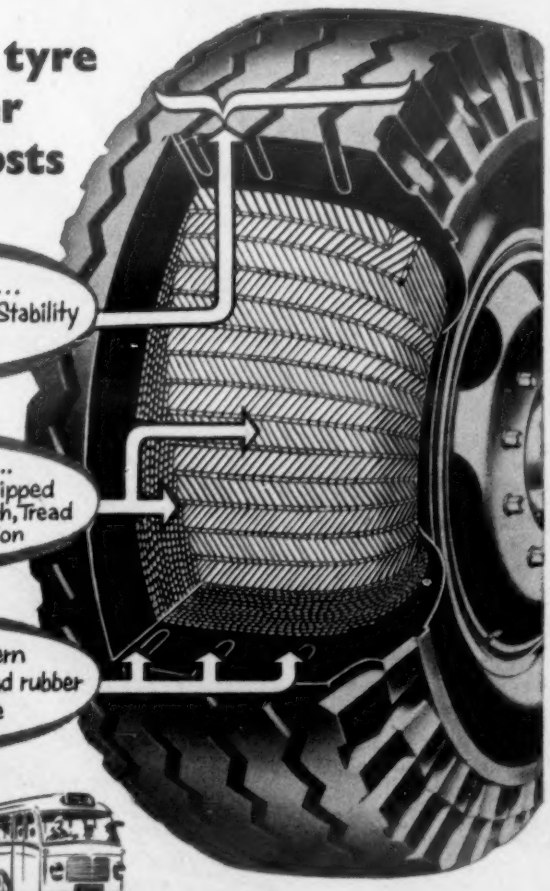

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BOOK NOTICES

Christmas Transport Literature

GREAT MOMENTS WITH TRAINS. By David St. John Thomas. (London: Phoenix House, Limited, 38 William IV Street, W.C.2. Price 8s. 6d.) Designed for the youthful reader this volume, illustrated by 20 sketches by E. W. Fenton, deals with the story of railways from George Stephenson to the present day. Each episode dramatically—sometimes luridly—highlights some phase of progress.

* * *

RAPIDLY ROUND THE BEND. By C. Hamilton Ellis. (London: Max Parrish and Co., Limited, 55 Queen Anne Street, W.1. Price 10s. 6d.) Behind the grim exterior of Ellis the historian lurks a sense of humour; Ellis the humorist has been given full play in this lighthearted history of railways which is on the pattern of *1066 And All That*. With most of such books the mind is easily sated, but we doggedly disposed of this latest contribution to the gaiety of transport undertakers at a sitting. It will have them rolling in the corridors, if we may coin a phrase.

* * *

THE GREAT EASTERN "CLAUD HAMILTON" CLASS. By Peter Proud. (Railway Correspondence and Travel Society—T. J. Edginton, hon. publications officer, 57 Heathfield Road, King's Heath, Birmingham, 14. Price 5s. 6d. post free.) Although not one of the more wealthy railways the Great Eastern was notable in several respects, from its smart suburban operation to the punch and vigour put into main-line express operation over a hard road. From 1900 onwards this was greatly aided by the Claud Hamilton class of 4-4-0 express engines, which totalled 121 in all. The idea of a booklet to deal with these engines and their numerous modifications as a result of rebuilding to several different designs under L.N.E.R. auspices was first mooted in 1936 when the author and Mr. K. R. Prentice were at work on *Locomotives of the L.N.E.R., 1923-37*, but much information then missing has now been obtained. The 24-page booklet is packed with facts, from origin to disposal and is enlivened by 22 photographs of the original and various rebuilds and a diagram showing the evolution of the various modified classes. A table summarises the history of each engine and another shows the variations in dimensions. This little publication is an excellent contribution to locomotive historical research and record.

FAR WHEELS. By C. S. Small. (London: Cleaver-Hume Press, Limited, 31 Wright's Lane, W.8. Price 25s.) Subtitled a "railway safari" this book was written in Tokyo by an American oil man who has been on some of the world's more unusual and most remote railway systems. This statement needs qualification, because the remote includes what an American deems far away and that covers a goodly slice of the East African Railways and Harbours system, not to mention Madagascar, which appears to be *inconnu* to the average U.S. citizen. However, we are glad that Mr. Small got around to Ruanda-Urundi, Eritrea, Fiji, 2 ft. 6 in. gauge lines in Japan and all the other places covered by his 166 pages, 60 photographs (he has some ideas on photography, set out in an appendix) and nine sketchy sketch maps. A tantalising—because incomplete—appendix deals with certain of the locomotives of the railways described; the author's interest is mainly in the story of second-hand engines. The book is decidedly unlike the product of English enthusiasts and that, perhaps, is its attraction.

* * *

LIVERPOOL OVERHEAD RAILWAY, 1893-1956. By Charles E. Box. (Hampton Court, Surrey: Railway World, Limited. Price 25s.) Son of a former general manager and engineer, the author, himself a railway signal engineer, tells in great detail the story of the world's first overhead electric railway. The book is of rather austere production standards but we are sure that its factual story will be eagerly in demand from students of provincial urban transport—how and why it was initiated, its pioneering achievements in electric traction and distribution and in automatic and colour light signalling, its gradual development and its eventual demise. The tramway to Great Crosby, the through services to the Lancashire and Yorkshire Railway and the steam shunting engine are among lesser matters duly given their place in the account. It is a tale of success, yet not quite such a resounding success as would have enabled the finding of the cost of renewing the steel viaduct structure, which had corroded in rather more than sixty years of life in a salt atmosphere under heavy load; the loading when two trains passed on sharp curves is blamed for strain on the girders and decking which led in the end to its closure.

BRITISH COMMERCIAL VEHICLES FOR THE WORLD. (London: Temple Press, Limited, Bowling Green Lane, E.C.1. Price 3s. 6d. net.) The eighth edition of this comprehensive buyers' guide, which is compiled by the staff of the "Commercial Motor." In the now well-known format, it provides specifications of all types of British commercial goods and passenger vehicles and directories of chassis manufacturers, bodybuilders and trailer makers.

* * *

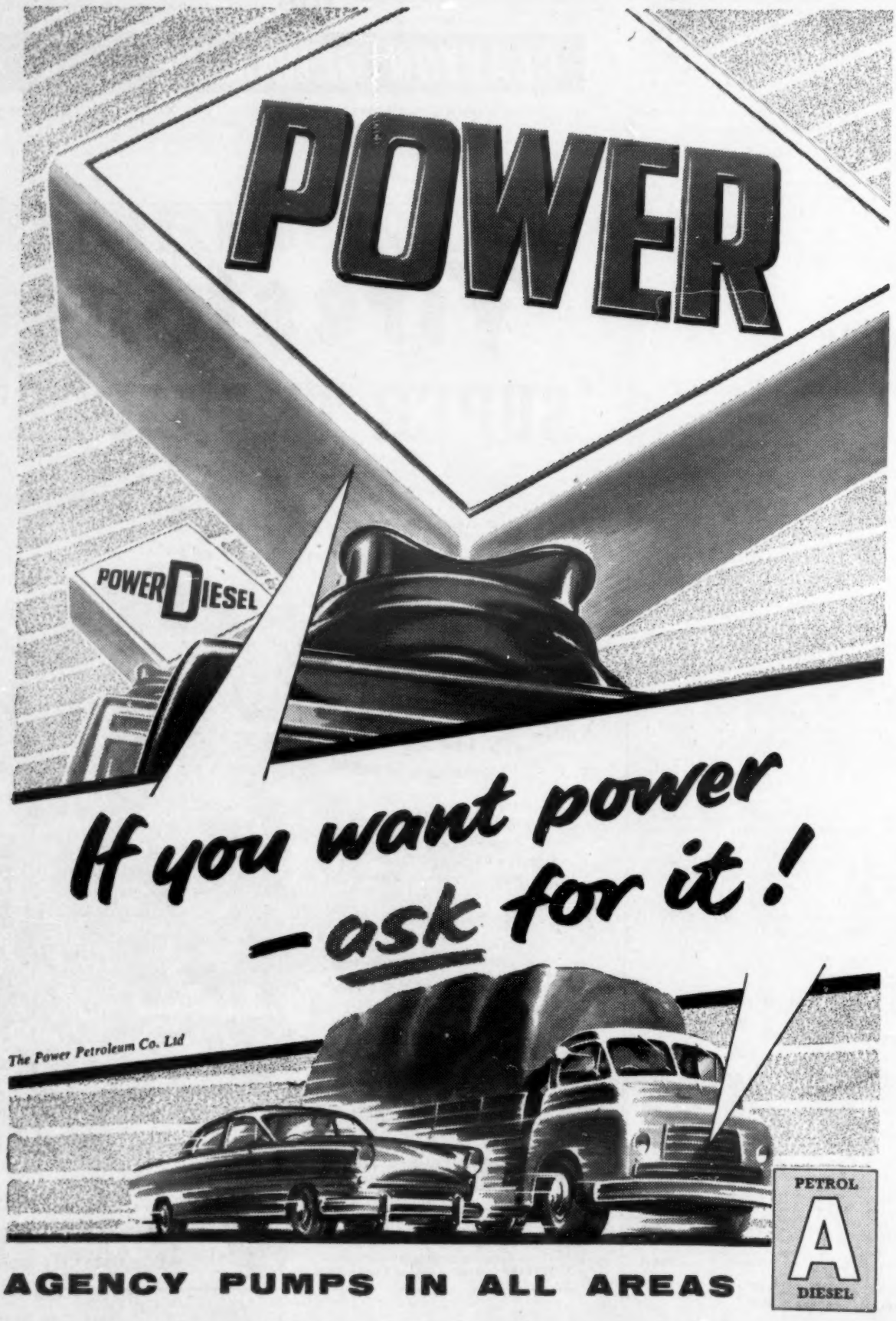
RUBBER TO METAL BONDING. By S. Buchan, M.A., B.Sc.(Aber.), Ph.D.(Cantab.), F.R.I.C., F.I.R.I. (London: Crosby Lockwood and Son, Limited, 26 Old Brompton Road, S.W.7. Price 42s. net.) For the second edition of this authoritative work, which is unique in its comprehensive coverage of every aspect of this comparatively new technology, Dr. Buchan has entirely revised the text and brought it up to date in the light of developments and new information during the 10 years since the book first appeared. The chemistry and practical engineering aspects of rubber bonding are set out in great detail and the additional problems introduced by new grades of synthetic rubbers are fully discussed.

* * *

THE BRITISH COMMERCIAL VEHICLE INDUSTRY. (Seventh Edition). London: Temple Press, Limited, Bowling Green Lane, E.C.1. Price 42s. net.) Substantially similar to the sixth edition in layout and content, this seventh edition retains the three-language (English, French and Spanish) headings for each data group, but makes reference easier by reproducing the English headings on each separate page of data. It has also been entirely revised and illustrated with new photographs and drawings. This book remains the only complete guide to the products of the British commercial vehicle industry and provides much additional information on manufacturers' overseas facilities. The purist might like to see more accurate conversions of tons to tonnes and h.p. to c.v. than appears in some of the captions.

* * *

THE MOTOR INDUSTRY OF GREAT BRITAIN, 1959. London: The Society of Motor Manufacturers and Traders, Forbes House, Halkin Street, S.W.1. One copy free to members on request, additional copies to members £2 2s., to non-members £2 10s., all post free in the United Kingdom. Having attained its position as an essential book of reference on the year-by-year progress of the British motor industry and its principal competitors, there are no major changes in content or presentation in this edition—the 13th in the postwar series. Some useful figures for exports in earlier years have been added, with comparable figures of the exports of other countries where space has permitted, adding to the value of the book as an authoritative source of statistical material on the motor industry.



LEYLAND OVERSEAS

Trucks in U.S.A.

SPANISH ASSOCIATES

FULL-SCALE plans for marketing its wide range of diesel trucks in the U.S.A. have been made by Leyland Motors Group, already the largest exporter of heavy-duty commercial vehicles in the world. The project has been initiated after an extensive market survey and sales and service investigation undertaken by Leyland and American personnel throughout the major states. Leyland group vehicles are now sold and serviced in 75 countries, one of the most recent additions being Japan; moreover, new co-operation is to be effected with the principal Spanish manufacturer.

Sales and full-scale servicing of the trucks throughout the United States will be handled by a newly-formed company, Leyland Motors (U.S.A.), Inc. The new company is a subsidiary of Jaguar Cars, Inc., of New York. It will be administered by the same executives that have increased the American business of Jaguar cars in America by 40 per cent within the last three years, doubling the retail selling organisation and building up a highly efficient service network. Mr. Donald G. Stokes, general sales and service manager of the Leyland Group, who has been the spearhead in the project, has announced that Mr. Kenneth D. Webb and Mr. George Reid will take up residence in the U.S.A. as Leyland's sales representative and service engineer respectively.

Wide Range

Products will include vehicles manufactured by Leyland Motors, Limited, Albion Motors, Limited, and Scammell Lorries, Limited, with a maximum rating from 8,000 lb. to 300,000 lb., although the trucks first marketed in America will range from 15,680 lb. to 100,000 lb. All are diesel-powered and range from local delivery trucks to the heaviest types of prime mover used in the American market. A dealer organisation is being appointed in the U.S.A. and a fully-stocked factory parts depot will be established and maintained in Long Island City, New York.

Commenting on the project, Mr. Donald G. Stokes said: "We have had this scheme in mind for some time, but we feel that now is the time to act. Our range of trucks has been competing most successfully against American products in many countries overseas. We now propose to extend this competition to the U.S.A. itself. We have an excellent reputation abroad for spares and servicing and we are determined to maintain this high standard throughout the United States."

Personnel

President of Leyland Motors (U.S.A.) Inc. is Mr. Johannes Eerdmans. Other officers nominated by the company are: vice-president, C. Gordon Benett; vice-president sales, R. B. Hilton; vice-president service, R. Graham Reid; vice-president advertising and public relations, Everett Taylor Martin; secretary and treasurer, William Mazza. United States headquarters will be at 32 East 57th Street, New York City.

One of the most important selling features of the Leyland vehicles will be their direct-injection diesel engines. They range in size from 72 to 275 h.p. These diesels normally cover over 250,000 miles before overhaul, although they have been known to reach over 530,000 miles. They have been sold previously in the U.S.A. for installation in U.S.A. buses to convert them from petrol to diesel operation. This business, as well as the sale of Leyland bus chassis, will continue to be handled by Highway Products, Inc., an associate of the well-known American Twin Coach Company. The Leyland direct-injection diesels which have already been sold in the U.S.A. have lifted more than a few eyebrows because of their fuel economy and generally low maintenance costs.

When a million-dollar "face lift" was recently given to the American bus fleet which serves Washington D.C., Leyland diesels were installed to replace the existing American petrol engines. By fitting the Leyland engines, the president of the D.C. Transit Company anticipated a fuel-mileage increase of at least 100 per cent, plus a saving in the lower cost of diesel fuel. Similar, and even greater, savings have now been made by more than 20 American operators which have installed Leyland diesels in petrol-engined vehicles. They include a number of U.S. mail vans which showed a fuel saving of over 100 per cent.

Link with Spanish Company

A financial link-up between Leyland Motors, Limited, and the Spanish automobile company of Empresa Nacional de Autocamiones S.A., manufacturers of Pegaso commercial vehicles, is announced. Sir Henry Spurrier, chairman and managing director of Leyland Motors, Limited, and Mr. Donald G. Stokes, the company's general sales and service manager, have accepted an invitation to join the board of directors of E.N.A.S.A.

Mr. Stanley Markland, Leyland's works director and managing director of Albion, in charge of Leyland Group production, has just examined the E.N.A.S.A. Madrid factory, which is the largest and most modern of its type in Spain. He has agreed to act as technical consultant for manufacturing and production processes at the Spanish factories. Leyland and E.N.A.S.A., under an agreement signed some time ago, have been interchanging technical information on the development of commercial vehicles. Now the Leyland company has purchased a substantial shareholding in the Spanish company which is sponsored by an organisation known as the Instituto Nacional de Industria. His Excellency Don Juan Antonio Suanzes, the president of I.N.I., and Senor Ignacio Munoz Rojas, president of E.N.A.S.A., have welcomed the close collaboration between these two major commercial vehicle manufacturing companies as a substantial contribution to the internal transport economy of Spain.

Pegaso Market Expansion

More immediate results of the co-operation between the two companies will be the extension of markets for Pegaso trucks which until now have catered mainly for Spanish needs. The trucks will in future become more competitive in the European markets and in countries abroad, particularly in Latin America. E.N.A.S.A. has a large expanding output of heavy trucks from its factories at Barcelona and Madrid. Production is highly mechanised, the Madrid factory incorporating a modern foundry and drop forging plant. A considerable quantity of units not manufactured in Spain is also being supplied by Leyland for incorporation in Pegaso trucks. It may be recalled that members of the Institute of Transport visited the Barcelona factory in May, 1957, during the congress in that city (MODERN TRANSPORT, June 8, 1957.)

SIGNAL ENGINEERING

Varied Papers Before I.R.S.E.

EQUIPMENT FOR 50-CYCLE RAILWAYS AND LIFTING BARRIERS

EXAMPLES of the widely varied range of technical experience covered in meetings of the Institution of Railway Signal Engineers are afforded by two recent meetings, at one of which a paper by Mr. W. M. Sweetenham, on signalling equipment for 50-cycle electrified lines, was discussed, while at the other Mr. E. G. Brentnall read a paper on lifting barriers at level crossings.

Mr. W. M. Sweetenham dealt with the various problems now facing the signal engineer consequent upon the decision to use 25,000-volt 50-cycle supply a.c. for traction instead of 1,500 or 3,000 volt d.c. as originally proposed, and explained the various effects of high voltages upon the operation of track circuits. He described some of the alterations necessary in the design of signal apparatus to render it immune from the effects of traction currents. These alterations covered the immunisation of d.c. track relays and the provision of protective apparatus in d.c. and a.c. track circuits. Mr. Sweetenham also gave demonstrations on various types of equipment and instruments which were displayed.

Leakage with a.c.

Mr. R. A. Green recalled that the Eastern Region had carried out tests between Fenchurch Street and Bow Junction four years ago on the effects of a.c. leakage currents upon the signalling equipment. The signalling manufacturers had been invited to co-operate with them in the subsequent research work. He also made observations on the type of equipment described and explained the Eastern Region's difficulty in the conversion work on the Liverpool Street—Southend section. Since 1949 this section had been operating on 1,500-volt d.c. and was now to be converted to the new a.c. system.

Mr. J. F. H. Tyler remarked that it was unfortunate that the information contained in Mr. Sweetenham's paper had not been available before the decision to adopt the type of electrification chosen. The additional amount of signalling apparatus now necessary seemed to outweigh, to a very great extent, the advantages claimed for a.c. electrification. Mr. Tyler made comparisons between the French and British methods of overcoming the problems. Mr. J. C. Kubale inquired whether the introduction of the various protective devices in the track circuits did not affect the value of the train shunt. The mileage of a.c. electrification in the country was small and therefore experience was at present meagre. He had no doubt that when more electrification had taken place present problems would be reduced.

Level Crossings

Mr. Brentnall introduced the subject of lifting barriers by stating that it might seem fairly straightforward but in order that the whole question of the provision of these barriers at level crossings on British Railways might be understood it was necessary to make brief reference to the history of protection at level crossings in Great Britain. For many years Parliament had not permitted public road crossings to be made over new or existing lines of railway, except in special circumstances or where they were constructed under the Light Railways Acts. Crossings of railways and roads on the level fell into two main types: (a) public carriage way and (b) occupation or accommodation. In recent years some crossings had been displaced by subways or bridges, but today there still remained 4,250 public crossings and 21,300 occupation crossings. The potential dangers of level crossings were early recognised and it was made obligatory by Acts of Parliament of 1845 and 1863 for railways to provide and maintain gates and to provide staff to attend them with suitable accommodation for the latter. The gates had to fence in respectively the road and the railway depending on their position, and had to be operated at site. This set a very rigid standard which had had to be followed down to the present time.

Gates at public level crossings can be operated mechanically from a signalbox, by power, also from a signalbox (a comparatively recent development) and by hand by gate attendant. It was recognised that the level crossing was a bane to road and rail users alike, but while some relief could be given at busy places by bridges and subways, at some locations it was physically impossible and the question of cost had also to be considered. The level crossing would therefore have to be endured for as long as railways existed.

Delays

The security of level crossings depended on the strict observance of safety instructions and in recent years it had become increasingly difficult to obtain men of sufficient integrity particularly under modern labour conditions where the number of relief men required was so much greater than in past years. The disadvantages of the present system had been increased by changing conditions. There had always been the necessity for closing the gates early enough to ensure that trains were not checked. Owing to the slow movement of heavy gates it was usual for a crossing to be closed at least five minutes for the passage of a train and sometimes longer if two trains passed at close intervals. There had always been delays to road traffic and while these were not so serious with the slow moving traffic of the last century, they caused considerable interference with the intense, high speed motor traffic of the present time.

Railway construction in other countries began some time after railways were working in Britain. They had no statutory obligation to fence the lines or to man public level crossings. Where some form of protection was considered necessary road signs were used. In later years, the increase in density and speed of motor traffic made some form of physical obstruction advisable. Lifting barriers were lighter and quicker than gates in operation and could be remotely operated from a signalbox or even automatically by the trains themselves. This type of crossing was now in active use on the Continent of Europe and in the U.S.A.

Lifting Barriers in U.K.

The idea of providing lifting barriers was not entirely new to the United Kingdom. Lifting barriers, operated mechanically at site, had been provided at Warthill, between York and Hull. They were brought into use in October, 1952, and modifications suggested by the Ministry of Transport and Civil Aviation were introduced in December, 1954. The crossing was now equipped with twin flashing red lights in each direction and a single fixed red light on each barrier with a circular group of reflectors placed on a red target in the centre of each boom. In 1954 permission was received from the Minister of Transport to substitute lifting barriers for gates as required but there was no opportunity of operating the barriers otherwise than at site so only small economies could be effected.

Some years ago the whole problem of level crossings came under the consideration of the Ministry of Transport and in 1956 a party of officers of the Ministry and of the British Transport Commission visited Holland, Belgium and France to study the latest Continental practice in level crossing protection and to consider to what extent it might be applied in Great Britain in order to secure important economies and reduce delays to road traffic, without prejudice to safety. A general questionnaire on level crossing practice was forwarded to each administration before the visit. On the tour 15 level crossings were visited in Holland, 11 in Belgium and 20 in France.

A summary of the conclusions of the party stated that Continental methods of operating level crossings would prove suitable in Great Britain without prejudice to safety. Lifting barriers could be used in general to replace gates at most attended crossings. Automatic and remote operation could also be adopted at selected places after trials. The belief that pedestrians and children must be afforded full protection at level crossings against the dangers of the line was illogical, since there were many places where adults and children had free access by wickets, footpaths and accommodation crossings with stiles. It was pointed out that the dangers to which pedestrians were exposed on the roads were at least as great and certainly more frequent than at level crossings.

First Stage of Lisbon Underground

(*Continued from page 3*)

are driven by four 90 kW motors, one to each axle; their performance on the 1 in 25 gradients, and when accelerating from rest, is impressive. They will run in two-car trains, joined by Scharfenberg couplings, and each car has a full-width driving cab at one end. Braking is electric down to 6 m.p.h. and air below, with trip-cocks; emergency braking also includes four low-tension magnetic track brake shoes, fitted on account of the steep gradients. A deadman's handle is incorporated in the control gear.

Upholstered seating is provided for 44 passengers, with normal standing room for a further 100, increased to about 160 under crush conditions. The cars have fluorescent lighting, with battery-fed emergency light in reserve. The guard travels in the rear car, from which he operates the air doors (three pairs to each car), announces the stops, and gives the starting signal to the driver, with whom he is also in loudspeaker communication. The trains are finished in a livery of red and light grey, with on each side the Metropolitano badge, a red "M" on a blue background.

Operation

Lisbon's population has not yet reached the one-million mark, and the line capacity envisaged is the modest one of 10,000 passengers an hour in each direction, achieved by running two-car trains at 2½-minute intervals; when traffic requires, this can be increased to 16,000 per hour by reducing the headway to 90 seconds, and four-car trains are envisaged at a later stage. Trains from Restauradores will run alternately to Entre Campos and Sete Rios. The throughout journey to each terminus will take 10 minutes, with five intermediate station stops of 20 seconds each, giving an average speed of 18 m.p.h. The service is to run for 19 hours each day, from 6 a.m. to 1 a.m., with peak periods in the morning, mid-day and evening. Thanks to the flat fare structure, tickets are inspected only on entry, the exits being controlled by turnstiles as in Paris. The opening of the Metro was expected to bring about a slight contraction of the tramway system, and some of the new front-entrance A.E.C. double-deck buses recently supplied to Lisbon were earmarked for these routes.

For some weeks a "ghost" service of trains has been run for several hours daily to train the staff. The accompanying photographs were taken during this trial period, by kind permission of Senhor A. R. Vaz Pinto, technical director, Metropolitano de Lisboa.

OFF-STREET PARKS

Loans from Pension Funds Suggested

STAFF and pension funds run by city and county borough councils could be used to provide loan capital for building parking garages, says the British Road Federation. Recalling the recent visit of Mr. Henry A. Barnes, Commissioner of Transit and Traffic in Baltimore, the Federation points out that in that city of one million inhabitants, there are 25,000 off-street parking spaces. These are provided by private enterprise with the aid of loans from the city, the developer needing to raise only 15 per cent of the cost of his site and building an approved structure.

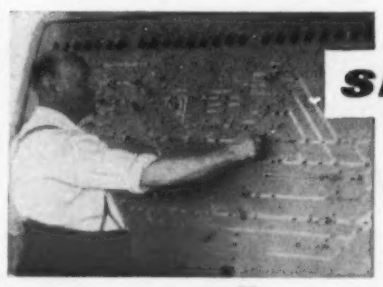
The city advances the remaining 85 per cent to be repaid over 20 years, interest at 3¼ per cent being much lower than prevailing market rates. The city advances this money from its staff pension fund. In addition to aiding the construction of no fewer than 26 parking garages, this scheme has proved beneficial to the pension fund.

75
BRUSH MAIN LINE DIESELS
For British Railways

This further order for 75 Brush type 2 Diesel Electric Locomotives for British Railways comprises the largest single order placed with a private firm by the British Transport Commission for Diesel Electric Locomotives and will all be supplied before the end of 1960. The Brush type 2 is powered by Mirrlees JVS 12T Diesel Engines of 1365 H.P.

Many in service on Eastern Region.
20 ordered 16th November, 1955.
40 ordered 3rd July, 1958.
20 ordered 3rd December, 1958.
Now 75 more.
Total 155.

BRUSH ELECTRICAL ENGINEERING CO LTD LOUGHBOROUGH, ENGLAND (Member of the Hawker Siddeley Group)
B.T.9.



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Simplicity of operation
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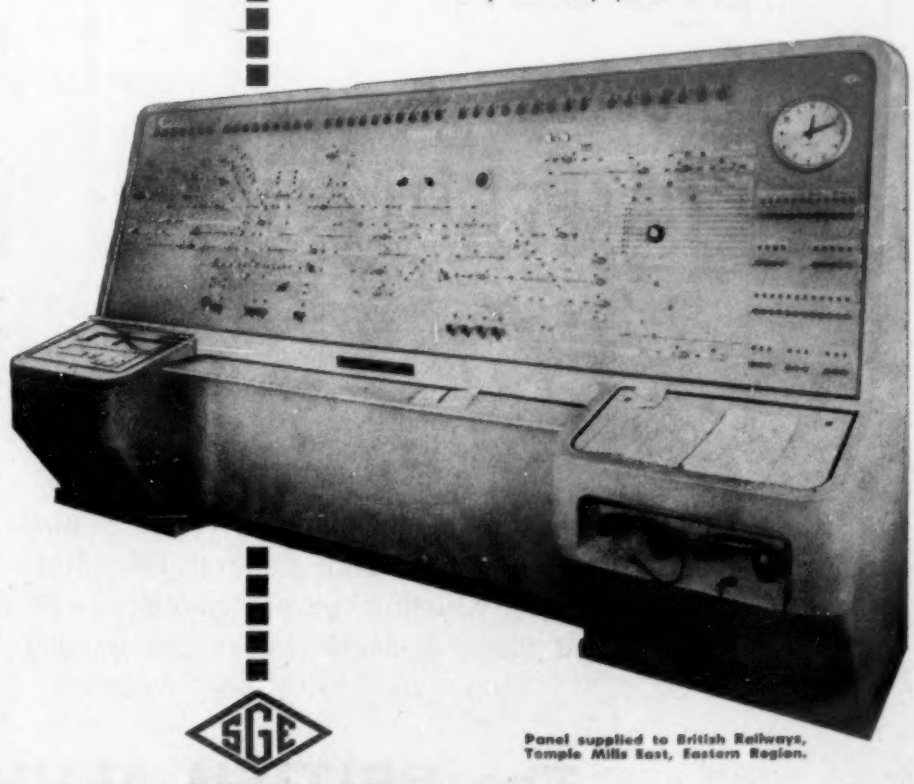

Panel supplied to British Railways, Temple Mills East, Eastern Region.

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- ★ **Full forward control with over 11′ body-space on 8′ 2″ w.b. chassis; over 14′ on 10′ 2″ w.b. chassis.**
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- ★ **Low platform easier and quicker to load.**
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EXPORT DIVISION: ROOTES LTD. DEVONSHIRE HOUSE PICCADILLY LONDON W.1

NEWS FROM ALL QUARTERS

Twenty-Four Hour Clock

Commenting upon a suggestion that British Railways might be willing to adopt the 24-hour clock, the North Western area Transport Users Consultative Committee says it is strongly in favour.

Rebuilding Holborn Viaduct Station

The Southern Region is to spend about £750,000 over the next two years in replacing the present station at Holborn Viaduct with a nine-storey office building. This will house at ground level booking offices, refreshment rooms and other station offices. The new station itself is expected to be completed in the autumn of next year and the office accommodation towards the end of 1961.

Rating of Station Kiosks

Mr. Erskine Simes, Q.C., a member of the Lands Tribunal, recently upheld a local valuation court decision that four tea kiosks at York Station are not rateable. He said his decision must affect a large number of similar British Railways kiosks. Those at York were on parts of the station to which access could only be obtained by those travelling by train or holding platform tickets. Members of the public did not and could not enter any of them.

Fremantle Railway Bridge

Messrs. G. Maunsell and Partners, the London consulting engineers, have been engaged by the Western Australian Government to design and supervise the construction of a new railway bridge across the Swan River at Fremantle. The firm designed Western Australia's newest road bridge, a pre-stressed concrete structure, opened for traffic a few weeks ago, also spanning the Swan River at Perth.

Closing of L.M.R. Branches

The London Midland Region has announced that the passenger train services between Northampton Castle and Market Harborough and Northampton Castle and Blisworth will be withdrawn on and from January 4, 1960, because they are unremunerative. On the former line Brixworth and Lamport will continue to deal with parcels and freight-train traffic, Kelmarsh and Clipston and Oxendon will be closed to all traffic except for private sidings at Kelmarsh. Parcels and freight will be dealt with at Market Harborough.

Relocation of Ottawa Terminus

The Canadian Government recently approved the recommendation of the National Capital Commission that the relocation of railway facilities in the Ottawa area be based on a new passenger terminal in the vicinity of the intersection of the Queensway and Alta Vista Road, near the Hurdman's Bridge area. This decision was reached only after several discussions with the railway companies and consultation with the chief planning consultant to the N.C.C. The Government believes the new location will fit in best with the growth and development of the city and its traffic. Removal of the terminal from the present location will give the maximum possible opportunity for the improvement of road traffic facilities in the congested central area.

Catterick By-Pass Opened

Yet another by-pass to the Great North Road, A1, is in use. Lord Chesham, Joint Parliamentary Secretary to the Ministry of Transport, opened the new £1 million Catterick by-pass on December 11. The by-pass, 3½ miles long, will divert traffic from Catterick village and Catterick Bridge. It leaves A1 near Catterick R.A.F. Station and rejoins it near Gatherley Castle. All intermediate roads cross below or above it.

Rhodesia Railways Express Freight

From November 30 Rhodesia Railways has extended to Northern Rhodesia its Railstar Express service which is designed to carry urgent goods traffic without extra charge when consigned Railstar. The Inter-City Railstar has hitherto operated in both directions on the Salisbury—Bulawayo line with connections to Umtali and Fort Victoria. Railstar North will bring rail transit times from Salisbury to Ndola to within 60 hr., while from Bulawayo the transit time will be 40 hr.

Fate of Orwell Ferries

Considerable opposition met the proposal of the British Transport Commission to withdraw its ferry services from Harwich to Shotley and Felixstowe. When the proposal was considered by the East Anglian Transport Users Consultative Committee it was stated that, since 1951, the ferries had lost between £3,800 and £6,000 a year and that 180,000 passengers annually were required to make them pay. It was admitted that 120,000 passengers had used the services in the first 11 months of 1959.

New Bridge in Southern Rhodesia

A new £103,800 bridge is to be built over the Lundi River between Fort Victoria and Beit Bridge as part of the scheme to provide an all-weather road from Salisbury to South Africa. The present low-level bridge is sometimes covered by 22 ft. of water when the Lundi floods during the rainy season and travellers have been held up by it for three and four days. The Southern Rhodesia Government has accepted a tender of £103,800 for building the bridge. Work is to start soon and the bridge is due to be completed by September, 1961. The bridge will be about 780 ft. long, with a 26-ft. roadway flanked by 3-ft. wide footpaths.

Tracked Motor Vehicles

Changes made recently in the Motor Vehicles (Construction and Use) Regulations, 1955, regarding lighting, carrying of loads, etc., are extended to tracked vehicles under new regulations which come into force on December 21. The Motor Vehicles (Construction and Use) (Track Laying Vehicles) (Amendment) Regulations, 1959 (S.I. 1959 No. 2053, price 4d.) include changes which have the effect of ensuring that where any lighting is fitted to a track-laying vehicle, that vehicle's lights and reflectors must be in working order by day and night; legalising the use on the highway of land implement conveyors with farm vehicles; and, in certain cases, when a track-laying vehicle is fitted with vacuum-assisted brakes, permitting a pressure gauge to be dispensed with.

ALUMINIUM MAKES BIGGER BUSES LIGHTER

The Routemaster is the largest two-axle bus ever to go into service with London Transport. Chassisless construction gives lightness with strength and these 64-seater buses are actually lighter than the smaller ones they replace. Aluminium panelling and special extrusions are supplied by British Aluminium to Park Royal Vehicles Ltd who are building 850 Routemasters.

The BRITISH ALUMINIUM Co Ltd

NORFOLK HOUSE ST JAMES'S SQUARE LONDON SW1

AP378

COMMERCIAL AVIATION

First Test of RB141

THAI AIRWAYS

THE news Rolls-Royce RB141 by-pass turbojet has satisfactorily completed its first run on a test bed at Derby. The new engine is the first of the second generation of Rolls-Royce by-pass jets and was designed from the start as an airline engine. It is based on the Conway which is already in production for jet air liners. Starting life at 15,000 lb. thrust, the RB141 is felt to offer the best overall operating economics yet announced for airline use. This outstanding performance is due to the choice of a medium by-pass ratio giving low specific fuel consumption with low weight and small engine diameter which gives low pod drag. A special mixing arrangement enables the hot core gases to mix with the cooler by-pass air with the minimum loss of efficiency. This mixer gives a minimum of 2 per cent improvement in specific fuel consumption, and reduces the noise level. Simple thrust reversers similar to those already in operation on the Avon and Conway engines can be fitted to the RB141.

Before the first run of the RB141 a large amount of component and rig testing had been completed, and efficiencies and mechanical features established. This early progress will make it possible for RB141s to be available for airline service early in 1962. The unit is already associated with the Caravelle, and is also very suitable for four-engined medium- to long-range jet transports either as original equipment or for re-engining existing aircraft powered by normal jet engines.

Runway at Shoreham Airport

The runway at Shoreham Airport may be lengthened by 1,400 yd. West Sussex County Planning Committee has intimated that it has no objection to the proposal.

K.L.M. Electra in Service

The first of the Lockheed Electras for K.L.M. (Royal Dutch Airlines) went into service on December 15 between Amsterdam and Cairo and on December 19 between Amsterdam and Damascus. The layout of the aircraft provides 16 first- and 48 tourist-class seats.

P.A.A. Extends Jet Service

Pan American will triple its round-the-world jet schedules and inaugurate jet flights to Australia, Bermuda, Nassau and the Caribbean, it has been announced by Mr. Harold Gray, executive vice-president of the overseas division. Beginning on December 23, eastbound jet flights will leave London on Wednesday, Friday and Sunday for Tokyo connecting with jet service across the Pacific to San Francisco and over the pole back to London. Five cities will be served for the first time by P.A.A. jets on this route, Munich, Vienna, Ankara, Tehran and New Delhi. The service now includes Frankfurt, Istanbul, Karachi, Calcutta, Bangkok, Hong Kong, Tokyo and Honolulu. Total elapsed time is just under three days. Jet service to Sydney, Australia, was inaugurated on December 15.

Thai Airways International

The formal incorporation of the new airline Thai Airways International—THAI—has been announced by Thai Airways Company and Scandinavian Airlines System. THAI has been organised on the basis of a co-operation agreement between the two airlines. Operations are scheduled to commence on April 1, 1960, and the head office will be in Bangkok. Mr. Ake Rusck, president of S.A.S., said that during the initial years, S.A.S. will make available to THAI a number of administrative and technical personnel and flight captains. S.A.S. would also organise and manage a large-scale training programme of Thai nationals in all aspects of international airline operation. Training of staff commenced a month ago in Bangkok and Scandinavia. THAI Royal Orchid services will link Bangkok with Hong Kong, Rangoon, Calcutta, Singapore, Kuala Lumpur, Pnompenh and Saigon. At a later stage Tokyo, Taipeh and Djakarta may be added to the network. During the initial traffic programme, the fleet will consist of three DC6Bs leased from S.A.S. These will be piloted by S.A.S. captains, who will also act as instructors for THAI operational personnel.

British Traffic in August

During August, 1959, capacity ton-miles offered by United Kingdom airlines on their scheduled services increased by 12.7 per cent and total traffic carried rose by 15.8 per cent; freight ton-miles increased by 13.2 per cent but mail ton-miles decreased by 0.3 per cent. 723,556 passengers were carried, or 14 per cent more than in August, 1958, and these passengers travelled 386.6 million passenger-miles, or 17.5 per cent more. The overall load factor rose from 62.2 to 63.9 per cent. During the five-week period ended August 29, 1959, capacity operated on B.O.A.C. scheduled services went up by 20.1 per cent compared with the corresponding period in 1958—capacity on Western routes increased by 41.5 per cent and on Eastern routes by 3.1 per cent. Total traffic carried rose by 35.3 per cent on Western services and by 5.6 per cent on Eastern services. The total of 69,245 passengers carried by B.O.A.C. was 29.3 per cent more than during August, 1958, and these passengers flew 226 million passenger-miles, or 23.8 per cent more.

Overall load factor dropped from 59.1 to 58.5 per cent. B.E.A. offered a total of 2 per cent more capacity on scheduled services in August, 1959, than in August, 1958; capacity on international services increasing by 1.5 per cent and on domestic services by 3.4 per cent. Total traffic carried rose by 12.3 per cent. 228,273 passengers, or 9.1 per cent more, travelled on international routes and 210,594, or 12 per cent more, travelled on domestic routes. These passengers flew 107.8 million passenger-miles, or 11.8 per cent more on international services and 44.1 million passenger-miles, or 14.3 per cent more, on domestic services. The overall load factor rose from 64.4 to 70.8 per cent.

The private operators in association with the corporations provided 7.4 per cent more capacity ton-miles on scheduled services in August, 1959, than in August, 1958; international capacity showing an increase of 6.3 per cent and domestic capacity showing an increase of 10.5 per cent. International freight traffic went up by 19.5 per cent while domestic freight rose by 39.7 per cent. Passengers carried totalled 224,753, or 17.9 per cent more, and these passengers flew 38.5 million passenger-miles, or 8.7 per cent more. There was an increase of 18.5 per cent in the number of passengers carried on international routes and an increase of 17 per cent on domestic routes. The overall load factor rose from 72.3 in August, 1958, to 75.3 per cent in August, 1959.

DEATH OF FORMER B.R. OPERATING OFFICER

The late Mr. R. F. HARVEY, M.B.E., M.I.Mech.E., M.I.Loco.E.

• • • • • •

The death has occurred in London at the age of 66 of Mr. Roderic Francis Harvey, who was chief operating and motive power officer, British Railways central staff, when he retired last December for reasons of health. He had spent nearly 50 years in railway service having joined the Derby locomotive works of the Midland Railway as a pupil in 1908. Born at Louth in 1893, he was educated at Watford and Derby Technical College. After passing through the various shops in the chief mechanical engineer's department and the running sheds he was appointed assistant to the district locomotive superintendent, Leeds, in 1914, and to a similar position at Kentish Town in 1915. For the remainder of the 1914-18 war he served in the Royal Navy and on release in 1919 returned to Kentish Town as assistant district locomotive superintendent. He subsequently gained experience in the district control office there and at Derby. He was appointed district locomotive superintendent, Worcester, in 1922; at Burton-on-Trent with the London Midland and Scottish Railway in 1923; and at Rugby in 1927 where he also took over the workshops. In 1932 he became district locomotive superintendent, Liverpool Edge Hill, from which position he became assistant divisional superintendent of motive power at Manchester in 1934. In October of the same year Mr. Harvey was transferred to Euston as assistant to the superintendent of motive power, L.M.S.R., being further transferred to Glasgow in 1939 with the title of assistant operating manager (Scotland). He was appointed motive power superintendent, Scottish Region, B.R., in 1948 and became chief officer (motive power), Railway Executive, in December, 1950. He retained that position under the British Transport Commission on the abolition of the Railway Executive in October, 1953. He took up the appointment from which he retired on January 1, 1955. Mr. Harvey's services during the war were marked by the conferment of an M.B.E. in 1943. He was a former member of council of the Institution of Locomotive Engineers, having previously been a vice-president from 1950 to 1954.

IN PARLIAMENT

Traffic Congestion

SCOTTISH STEAMERS

OPENING a debate in the House of Commons on traffic problems on December 10, MR. A. WEDGWOOD BENN for the Opposition said that it was impossible for the Minister of Transport to solve the problem unless he got more help from the House. On the immediate chaos in the great cities it seemed to him that it was quite impossible to continue with the present divided control. There were 1,285 different highway authorities. In London, the one thing lacking was a central authority to bring order out of chaos. The Minister should immediately, even if it involved legislation, take power to deal with the London traffic crisis. He believed this could only be done by appointing a commissioner for Metropolitan transport. He must give him authority immediately to cut across all the confusion that now existed. The commissioner, he suggested, should be the prime authority for traffic engineering.

The commissioner should have executive control, which would allow him without delay to impose one-way working, clearways in London, to control parking, to install parking meters, to have lanes painted on the road, to put necessary bans in operation, to make use of the powers now vested in different authorities to bring them together—and to act rapidly. The commissioner, too, should have the authority, with a budget, to finance small improvements—the system of financing road development was quite unsatisfactory.

Staggered Hours and Compulsion

One thing was quite certain. They would not get staggering unless there was a measure of compulsion applied. It was a very difficult thing to compel staggering. You could not arrest a man in a bowler hat on the grounds that he had arrived 15 minutes too early. The only way was to say to people who employed these workers in London: "If you must insist on discharging them at five-thirty, you must pay a tax for employing people in London and this tax will be immediately discharged if you co-operate with the staggering committee."

Mr. Benn believed that the traffic commissioner in London should have his parallel in every urban area in the country. What was required in places like Bristol, Birmingham and Manchester was an arrangement for integration of the whole transport system in much the same way as in London. The effect of this would not be to solve the problem of congestion but it would guarantee maximum capacity of existing roads and provide the statistics on which it would be possible to calculate future development.

Before major projects of motorways, and particularly urban motorways, were considered, the country's investment programme should be discussed with the British Transport Commission and, in London, with the London Transport Executive. The Victoria Tube scheme was not only cheaper per mile by about half of an urban motorway but would also give us a much better return on our money.

Long-term Study

The MINISTER OF TRANSPORT said the problem was not merely one of road engineering, of constructing roads or off-street car parking, but a design for living in the fourth quarter of the century. He believed we should have a long-term study group, with no executive responsibility, not to go merely into road programmes but—consisting of architects and town planners—to see how we could come to terms with the problem.

In October, the total casualties were 17 per cent higher than in October, 1958. The corresponding increase in traffic was only 11 per cent. "If that goes on, everybody can expect to be a casualty at least once in their lifetime. That is all the more reason for starting, at a reasonably early date, some sort of study group."

It was relatively easy to construct a motorway or to improve a trunk road. The limiting factors were money, the resources of the industry and technical planing—and the limitation Parliament had imposed on the Minister and the authorities to safeguard the rights of the individual. The House might have been right to do that—probably was—but it could not have those limitations and expect excessive speed.

Periphery Marking

The day of the long-term parker who came to London or any other big city and left his car in the road for eight hours or more was virtually over. He had no right to strangle the area where he earned his living. Mr. Marples was negotiating with British Railways to see that, at the periphery of London and other places, there were adequate car parks provided so that people could go to the periphery and come in by public transport. Any kerbside spaces should be used by short-term parkers. The best way was the parking meter. He would rather eight people used a given space for one hour than one person use it for eight hours.

There should be some tidal flow. On Waterloo Bridge, at night, there were two lanes of traffic at the most struggling to go south, with a row of cars parked on the nearside and lamp standards in the centre. The car parks and the lamp standards in the centre should go. There should be, perhaps, five traffic lanes—four devoted to southbound traffic in the evening and four for traffic coming into London in the morning. Loading had to be restricted. It was no use traders saying they would not do it; they had to play their part. U-turns in the middle of the street ought to be stopped. Therefore, in the pink zone, he was going to put a stop to taxis making U-turns when they were moving. When they were stationary in the centre of the road it was rather different.

Scottish Steamer Services

When the Secretary of State for Scotland was asked by MR. N. MCLEAN about inadequate steamer services to the islands of Skye and Raasay he said that he had visited the places this summer and discussed the services. MR. MACLAY added that the Highland Panel was understood to have found the facilities inadequate when it discussed them recently and David MacBrayne, Limited, had been asked for its comments.

Telephones in Trains

Asked by MR. H. CLARK what progress there had been in investigating the installation of public telephones in trains, the POSTMASTER-GENERAL said that radio telephones could be provided in trains, but there was little evidence of demand justifying the expenditure. Pressed in a supplementary Mr. Bevins maintained that demand was likely to be infinitesimal and suggested that use of the availability of the service as an inducement to travel was more in Mr. Marples's province.

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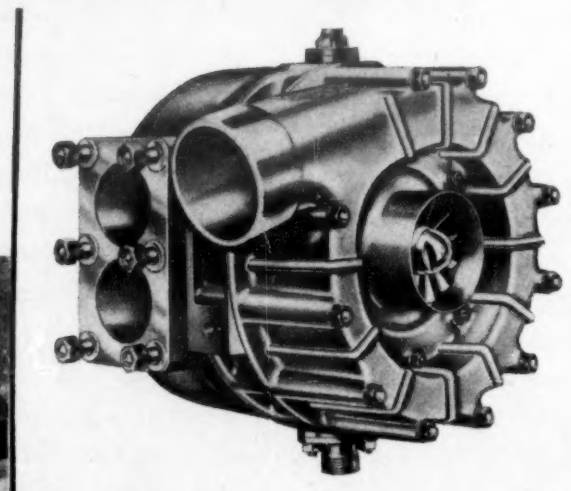

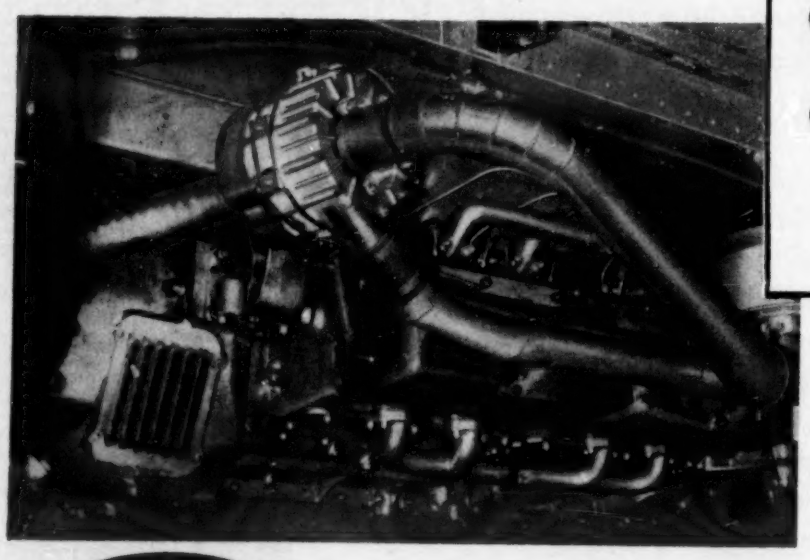

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MULTI-FUEL ENGINES

*Abstracts of Papers at F.V.R.D.E. Symposium**

OPPOSED-PISTON DEVELOPMENT

By E. W. Coy, B.A., M.I.Mech.E., Chief Engineer, Diesel Engineering Division, Rootes Group (contd.)

THE opposed-piston engine is a good starter on gas oil, in fact the Rootes diesel engine will start satisfactorily down to 0 deg. F. without any aids. It is inevitable that on the lighter fuels low-temperature starting is not as good as with gas oil and investigations to date on MT80 suggest that it is 20 deg. F. worse off than gas oil, for a fixed engine condition. In other words, the use of starting aids, either in the form of heaters or ether, must be brought in at a higher temperature with petrol than with gas oil. Without any aids MT80 petrol can be used through an English winter, although premium petrol (octane rating 95 research) can present starting difficulties.

All the work described in the foregoing paragraphs has been done on an engine in a more-or-less standard condition and with a compression ratio of 16 to 1. The limiting octane rating for satisfactory operation appears to be about 90 research and to deal satisfactorily with fuels reaching 100 octane research, further work is necessary. In particular it seems evident that some increase in compression ratio to raise the end temperature will be required.

Mechanical Considerations

On the mechanical side, any discussion of the opposed-piston engine would be incomplete without some mention of the exhaust piston, which is a controlling feature of the performance to which an engine can be set. The Rootes engine has a two-piece fire ring and two taper-sided compression rings above the gudgeon pin and the fire ring is the only ring which is free* to turn. Considerable development work has been necessary to keep the ring condition in step with increasing performance and further work is necessary to match further increases. The main problem is to ensure a good fire ring condition coincident with the use of the hot crown. The taper-sided compression rings normally present no problem with sticking or scuffing as long as the fire ring condition is satisfactory.

Importance of Fire Ring

The two-piece fire ring contributes in no small way to the good cold-starting performance of the opposed-piston engine and it has always been our view that, for engines required to operate under automotive conditions, this type of ring is highly desirable.

The possibility of fouling of the exhaust ports can also be a feature of this type of engine, but with suitable attention to port design and the use of a highly detergent oil it does not present any real difficulty on gas oil and it is interesting to note that, on the lighter fuels such as MT80, port fouling just does not occur. The use of piston-controlled exhaust ports is of considerable benefit when running with fuel having a high concentration of tetra-ethyl lead, as there are no exhaust valves to suffer from the effects of lead deposits. It may be argued that the lower exhaust temperatures of the compression-ignition engine would avoid such problems in any event, but it is significant that one manufacturer of four-stroke multi-fuel units considers it necessary to use sodium-filled exhaust valves.

Other Developments

As a result of the good performance of the Rootes diesel engine on the required range of fuels, a decision was taken by the Ministry of Supply to develop specialised engines of the opposed-piston type in three different cylinder sizes. The largest of these is a six-cylinder unit of 3.17 litres per cylinder capacity and the author's firm has been entrusted with certain development work on a single-cylinder unit which is required to give initially, with a mechanically driven scavenge blower, an output of 115 p.s.i. b.m.e.p. at maximum torque and a maximum of 116 h.p. The first unit has now been running for a short time and, although the maximum h.p. has not been achieved, the maximum m.e.p. has been exceeded. The behaviour of the engine has so far been very satisfactory.

The information discussed in this paper shows that a good performance on a wide range of fuels can be obtained from a commercial opposed-piston engine with virtually no changes except to the fuel-injection equipment. A comparison with other types, on which extensive changes are required, suggests that the opposed-piston form is better suited than any to multi-fuel operation and it is anticipated that it will make a real contribution to the solution of fuel supply problems which arise in military operations. Taking a wider view, however, and acknowledging that the military conditions are perhaps rather special, the developments done to meet them have given ample demonstration that certain types of compression-ignition engine could easily digest the wide cut fuels which, according to the forecast by various authorities, may have to be accepted in the future to make the most economic use of available oil supplies.

* The first part appeared December 5.

LEYLAND L60 ENGINE

By N. Tattersall, M.I.Mech.E., M.I.P.E., Chief Engineer, Engine Division, Leyland Motors, Limited

THE importance of equipping military vehicles with engines which are indifferent to the type of fuel used is so obvious that emphasis is unnecessary. Quite apart from this consideration the maximum utilisation of crude oil is advisable in times of plenty. It may well become a matter of economic necessity in the future, as it seems to be inevitable that the use of internal-combustion engines will continue to increase. It is unfortunate that most of the current designs of both Otto cycle and diesel engines are only capable of running in a satisfactory manner on a limited range of fuels and it may not generally be recognised how severe this limitation may be. For instance, on the average, the Otto cycle and diesel engines are each capable of consuming only 25 to 30 per cent of all the hydrocarbons available in the basic crude oil. The corresponding figure would be about 70 per cent for a multi-fuel engine conforming to the specification laid down by the British Ministry of Supply.

While many current designs of diesel engine are capable of running on petrol, the noise level is generally increased, starting may be difficult and power output disappointing. Extensive trials have been carried out by the Fighting Vehicles Research and Development Establishment and as this work proceeded it became evident that the following trends must be followed if efficient engines, capable of meeting the stringent conditions specified, are to be produced. 1. The combustion chamber must be as compact as possible. This is a matter of great importance, as a combustion chamber having a large surface area would permit the loss of a considerable amount of heat during the compression stroke. This leads to noisy operation, and starting, especially under Arctic conditions, would be difficult. 2. The surface of the combustion chamber should be maintained at a high temperature to ensure the best possible conditions for the promotion of complete combustion.

Meeting Requirements

The opposed-piston two-stroke diesel engine appeared to meet these requirements in a most satisfactory manner. It was fortunate, in so far as the rapid development of such an engine is concerned, that large numbers of engines of the type operating on diesel fuel have been on the roads of this country for several years. This circumstance enabled a considerable amount of operating experience with different types of fuel to be gained in the minimum time.

It was considered that a large potential market existed for a supercharged multi-fuel engine capable of developing 600-700 h.p. and Leyland Motors, Limited, was commissioned by the Ministry of Supply to undertake the design. Various layouts of horizontal and vertical engines were considered and as the investigation proceeded it became clear that a most compact unit could be built. It was eventually decided that the most attractive installations in vehicles, bulldozers,

(*Continued on page* 11)

cranes, railcars and various types of oilfield equipment could be made by using vertical engines and providing sufficient drives to cater for a wide range of auxiliaries.

A brief specification of the engine finally adopted is shown below:

No. of Cylinders	.. .. ..	6
Bore	.. ..	117.5 mm. 4.625 in.
Stroke	.. ..	146 mm. 5.75 in. by 2
Cubic Capacity	.. .. ..	1,153 cu. in. 18,993 cc.
Overall Height	.. .. ..	1,136 mm. 44.75 in.
Overall Length	.. .. ..	1,300 mm. 51.20 in.
Rating	.. .. .	700 b.h.p. @ crankshaft speed of 2,400 r.p.m.

Great care was taken to keep overall dimensions down to a minimum and a most compact arrangement has been achieved, while installation in almost any type of vehicle has been simplified by mounting the flywheel on one of the intermediate driving gears.

The supercharger is mounted directly on to a large air manifold. From this manifold, air passes through inlet ports which are so arranged that a pronounced swirl is given to the ingoing charge. Two injection nozzles are used in each cylinder. Each piston is provided with a detachable head made from stainless steel. The object of this method of construction is to provide a heat barrier so as to maintain the surfaces of the combustion chamber at as high a temperature as possible. In view of the wide variety of application for which it is believed this engine will be suitable, great care was taken in the selection of auxiliaries.

Auxiliary Systems

A main oil pressure pump and the two scavenge pumps are mounted directly on the side of the oil sump. The pumps are capable of providing adequate lubrication to all bearings, even if the engine is tilted to an angle of 45 deg. in any direction. The oil from the scavenge pumps is passed through a heat exchanger on its way to a reserve tank. A full-flow filter is provided in the oil line leading from the main pressure pump to a gallery in the crankcase.

For cooling, two pumps are mounted on opposite sides of the crankcase. These pumps feed the coolant directly into a gallery running the full length of the crankcase, from which the flow is directed into separate streams, each of which passes vertically along spiral grooves cut into the cylinder liners.

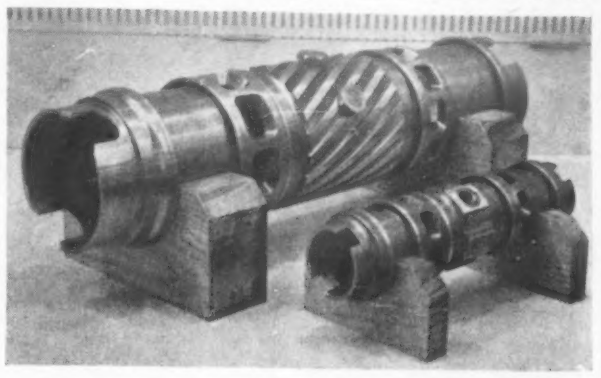
Fuel is injected by a pump which is conventional in its general design, except that internal grooves are machined in the pump cylinders to provide lubricant for the plungers. Each pump element is capable of delivering up to 205 cu. mm. per stroke, the delivery being controlled by a hydraulic governor. The importance of fuel filtration has received the most careful consideration. Twin filters are mounted above the fuel pump and a final micro filter is incorporated.

Two Methods of Starting

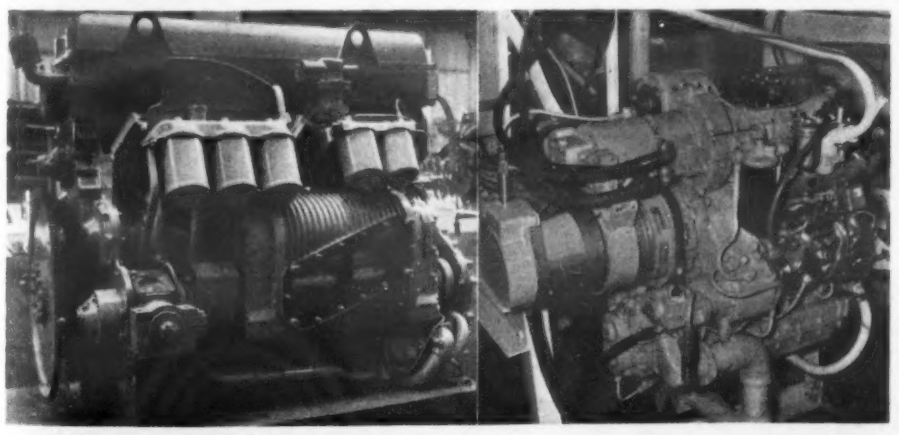
The engine can be equipped with electric or hydraulic means of starting, a 24-volt electric system with a starter motor capable of developing 12 h.p., or optional hydraulic equipment, which should prove to be most valuable under extremely cold conditions.

For certain applications it was considered that the cooling fans could conveniently be mounted as separate units; designs have been prepared of a hydraulic system capable of dealing with the hydraulic starter motor and twin driving motors for cooling fans. If the installation of the engine permits a cooling fan being used in the conventional position, then it is a simple matter to drive it by V belts.

In so far as the general scantlings are concerned, the engine has been designed to conform to normal Leyland practice. The crankshafts are made from nickel-chrome steel, heat treated and nitrided. Crankpins and main bearings are 76 and 103 mm. diameter respectively. Thin-shell copper lead bearings are used for both connecting rods and main bearings and the connecting rods are drilled to provide an oil feed to the gudgeon pins. The gears connecting the twin crankshafts are made in nickel-chrome steel. They are case hardened and ground with great precision, so that backlash may be kept down to a minimum.



Cylinder liners for the Leyland L60 and (front) Coventry Climax H30 multi-fuel engines. The spiral grooves on the larger unit are for directing coolant flow



The Leyland L60 engine develops 700 b.h.p. at 2,400 crankshaft r.p.m. from 18.99 litres. The electric starter is seen on this side of the engine and an optional hydraulic starter is fitted to the other side; right, the Coventry Climax H30 engine in its auxiliary role driving both hydraulic motor providing starting power for a fighting vehicle main engine and 10-kW generator

COVENTRY CLIMAX H30 ENGINE

By J. J. S. Smith, A.M.I.L.E., Chief Designer, Sir W. G. Armstrong Whitworth and Co. (Engineers), Limited

THE effectiveness and reliability of the two-stroke opposed-piston compression-ignition engine as a multi-fuel high-speed power unit has been amply proved at the Fighting Vehicles Research and Development Establishment. An engine of this type, manufactured by Rootes Motors, Limited, under licence from Sir W. G. Armstrong Whitworth and Co. (Engineers), Limited, has undergone considerable testing with various fuels and a paper on this particular unit has been presented at this session. (Mr. E. W. Coy's paper.) Further, Coventry Climax Engines, Limited, in conjunction with Sir W. G. Armstrong Whitworth and Company, has produced a 250-cc. single-cylinder opposed-piston compression-ignition engine of the rocker-beam type for running with diesel fuel, and this engine, which was designed to produce 7½ h.p. at 3,000 r.p.m. ran successfully on 80-octane petrol. This development experience has been applied to the design of the H30 engine.

The engine was primarily designed for use as an auxiliary engine in fighting vehicles and in the particular role described, drives a 10-kW d.c. generator at 4,000 r.p.m. It also drives a hydraulic pump which powers the starter of the main power unit. It is a direct-injection high-speed C.I. engine, designed speed 3,000 r.p.m., operating on the two-stroke cycle having three vertical cylinders of 55-mm. bore, in which operate two opposing pistons each having a stroke of 69.85 mm. resulting in a swept volume per cylinder of 331.5 cc. (20.24 cu. in.). The pistons are connected to two three-throw crankshafts.

General Arrangement

The cylinder liners are water cooled and incorporate lips which support the liner and serve as water and gas seals. Each liner has eight machined air ports to induce tangential entry of the air charge and thus provide rotational air swirl in the cylinder. An air chamber of ample capacity common to all cylinders is provided and is charged by a Roots-type blower. The injector sleeve serves to locate the cylinder liner.

A two-piece piston is employed, the crown being of heat-resisting steel. The first ring of each piston is a composite fire ring. Two wedge-type compression rings are located between the fire ring and the gudgeon pin; after the gudgeon pin is the gas sealing ring and twin stepped oil control ring. All except the fire ring are prevented from rotating. The dished piston crowns and small bumping clearance form the complete combustion chamber. The gudgeon pin is of the floating type and is located endwise by means of two end plates expanded into the piston. The connecting rod is drilled for small-end lubrication.

The gudgeon pin bearing is steel backed with copper lead lining. Four steel-backed main bearings support each of the two crankshafts. The pressure or cap halves of these bearings are lined with copper lead while the non-pressure or block halves are lined with white metal. Bearings of a similar type are also fitted to the connecting rod big end, but in this instance the copper lead halves, which take the load, are fitted to the rod end. The crankshafts are machined from nickel steel stampings and are not surface hardened. Flywheels are flange mounted to each crankshaft and with the full load of the engine being transmitted through the gears these are of ample proportions.

Auxiliaries

The two crankshafts are geared together at the rear end of the engine through a train of five straight-toothed spur gears. The timing of the gears is such that the exhaust crankshaft leads the air crankshaft by 12 deg. The teeth of all gears are case hardened and ground. To reduce friction at sub-zero temperatures the bearings of the gear train are of the ball or roller type. To facilitate starting at sub-zero temperatures, an ether primer is provided in the air-intake duct and 24-volt electric starting is fitted.

A centrifugal pump circulates water to the lower end of the block for even distribution to all cylinders. The cooling water rises through the restricted slots round the liner in the region of the combustion chamber.

Pressure lubrication is by a gear-type pump drawing oil from a tank underslung from the lower engine casing. Oilway drillings provide an intermittent oil feed to the gudgeon pins and lubrication for the main crankshaft gear train is provided by oil jets in the side of the gearcase. Lubrication of the fuel pump and governor bearings is automatically supplied from the engine system, as is also the sealing and lubrication of the fuel-pump plungers. An oil pressure switch set to operate at pressures below 20 lb. p.s.i. is also incorporated in the pressure system. To accommodate angles of inclination and tilt, two scavenge pumps are mounted with the pressure pump in the engine gearcase.

Fuel from the tank is pumped under pressure to the suction gallery of the injection pump specially designed for operation with a variety of fuels. The plungers are sealed to prevent fuel from leaking into the camshaft chamber of the injection pump and the gallery is vented to prevent fuel vaporisation when using petrol. An Isospeedic governor is arranged to give a warming-up speed of 1,200 r.p.m. and an operating speed of 3,000 r.p.m.

(To be continued)

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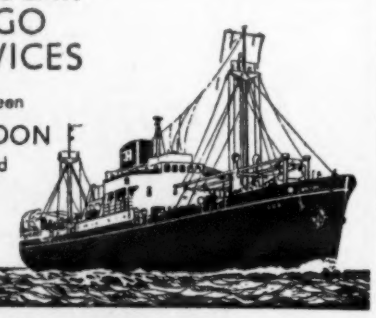

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SEA LINKS WITH THE CONTINENT

*23—Facilities in Scotland**

SCOTTISH industry—as visitors to the recent Scottish Industries Exhibition will have observed—covers a multitude of trades. Whisky and wool are traditional products of the country and world famous but Scotland produces and manufactures just about everything. Some of the more important industries are chemicals, engineering, foodstuffs, heavy industry, leather goods, linoleum, printing and publishing, textiles of all kinds and of course shipbuilding.

Some of the trade associations between Scotland and the Continent are very old. The first things made to sell abroad were textiles and there are 17th-century records of knitted stockings being sent from Aberdeen to Scandinavia and of border grey cloth from Leith to the Netherlands. Plaidings from Glasgow to France is yet another old link keeping alive the "auld alliance" between Scotland and France.

Old-Established Links

Sea links between Scotland and various Continental ports have played an important part for over 300 years and today over 20 shipowners maintain regular cargo services between the principal Scottish ports and ports between the Baltic and the Mediterranean. These are summarised in an accompanying table.

It will be observed that the ownership of the lines is fairly equally divided between British and foreign owners and there are several examples of joint services.

The Scottish ports catering for Continental sailings are well equipped and strategically placed in regard to access by road or rail to the main manufacturing area of central Scotland. For geographical reasons the east coast has the larger number of direct sailings and in this order of importance taking the country as a whole:

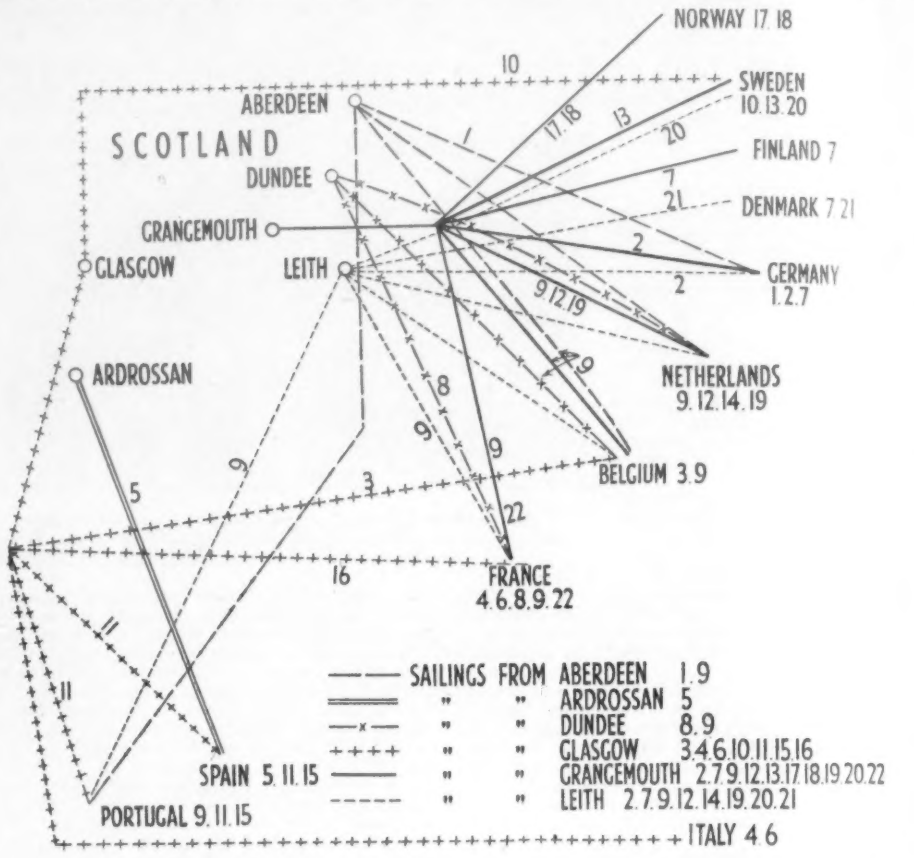
Grangemouth	has	10 shipowners serving 7 countries
Leith	..	8 shipowners serving 7 countries
Glasgow	..	7 shipowners serving 6 countries
Dundee	..	2 shipowners serving 3 countries
Aberdeen	..	2 shipowners serving 4 countries
and Ardrossan	..	1 shipowner serving 1 country

Sailings from Scotland fall into five Continental groupings covering: Scandinavia; Germany; the Netherlands, Belgium and France; Spain and Portugal; and Mediterranean ports and Italy.

Scandinavia

Seven shipping lines serve Scandinavian ports from Scotland. Sailings to Norway are operated by Norwegian owners from Grangemouth. Chr. Salvesen and Company—well known in the fishing and whaling industry—maintains a three-weekly service to Stavanger, Bergen and Trondheim, and Fred Olsen Line a fortnightly service to Oslo and Leith where Chr. Salvesen and Company acts for the owner. Recent sailings have loaded in Edinburgh dock. Other ports in Sweden such as Halmstad and Uddevalla are also covered.

(To be continued)



Map reference	Shipowner	Scottish ports	Countries served
1.	Aberdeen Steam Navigation Co., Limited, Aberdeen	Aberdeen	Germany
2.	Argo Reederei Richard Adler and Sohne, Bremen, Germany	Grangemouth Leith	Germany
3.	British and Continental Steamship Co., Limited—apply Clyde Shipping Co., Limited, 78 Carlton Place, Glasgow	Glasgow	Belgium
4.	John Bruce and Co. (Shipping), Limited, 45 Renfield Street, Glasgow, C.2	Glasgow	France Italy
5.	Cofruna Line (Cia. Frutero-Valenciana de Navigacion, S.A.), Valencia, Spain—apply Leinster Co., Limited, 44 Leadenhall Street, London, E.C.3.	Ardrossan	Spain
6.	Constantine Lines, Limited, 120 St. Vincent Street, Glasgow	Glasgow	France Italy
7.	Currie Line, Limited, Trinity Cottage, Goldenacre, Edinburgh, 5	Grangemouth Leith	Finland Denmark Germany
8.	Dundee, Perth and London Shipping Co., Limited, Dundee	Dundee	France
9.	Gibson Rankine Line, 64 Commercial Street, Leith	Aberdeen Dundee Grangemouth Leith	Belgium France Holland Portugal
10.	Glen and Co., Limited, 165 St. Vincent Street, Glasgow, C.2	Glasgow	Sweden
11.	H. Hogarth and Sons, Limited, 120 St. Vincent Street, Glasgow, C.2	Glasgow	Portugal Spain
12.	Holland Steamship Company, Amsterdam, Holland	Grangemouth Leith	Holland
13.	Monark Line—apply J. T. Salvesen and Co., Limited, Grangemouth	Grangemouth	Sweden
14.	Geo. A. Morrison and Co. (Leith), Limited—agent for owners	Leith	Holland
15.	Moss Hutchison Line, Limited, 91 Bothwell Street, Glasgow	Glasgow	Portugal Spain
16.	Wm. H. Muller and Co. (London), Limited—apply John Scott and Co., (Shipping), Limited, 80 Blythswood Street, Glasgow, C.2	Glasgow	France
17.	Fred Olsen Line, Oslo, Norway — apply J. T. Salvesen and Co., Limited, Grangemouth	Grangemouth	Norway
18.	Chr. Salvesen and Company, Leith	Grangemouth	Norway
19.	Shipping and Coal Company, Grangemouth or Leith	Grangemouth Leith	Holland
20.	Swedish Lloyd Line—apply Chr. Salvesen and Company, Leith	Grangemouth Leith	Sweden
21.	United Steamship Co., Limited, of Copenhagen, Denmark — apply Furness, Withy and Co., Limited, Leith	Leith	Denmark
22.	Worms Compagnie Maritime et Charbonniere — apply Walker and Bain, Grangemouth	Grangemouth	France

* No. 22 appeared September 26.

IMMERSION-BATH SEALANT

Pyrene Heat-Lok

RECENTLY introduced by the Metal Finishing Division of the Pyrene Co., Limited, is a new treatment named Heat-Lok, which provides a protective chemical blanket for hot immersion processing baths. Its use is said to have resulted in greatly reduced heating costs, improved working conditions and a reduction in equipment maintenance. The Heat-Lok treatment consists of two integral components, namely Heat-Lok Sealant, forming a protective blanket on the surface of the processing bath, and Heat-Lok Additive, which is a surface activating agent in the processing solution itself. The company says that Heat-Lok has no harmful effect on the coating characteristics of the processing solution; indeed it frequently increases the efficiency of the process, tending to produce more complete and uniform coatings.

Enlarging on the advantages resulting from the use of the new treatment, the Pyrene Company says it saves up to 70 per cent of the heating costs; the chemical blanket practically eliminates surface evaporation and greatly reduces warm-up time by sealing in the heat. Working conditions are greatly improved because the Heat-Lok layer blankets all steam vapours, fumes and heat, containing them within the bath itself. Maintenance of equipment is greatly reduced through the savings in B.T.U.s; there is less demand for heat and consequently maintenance on heating elements is correspondingly reduced. Also, exhaust system requirements can be cut to the minimum, if not completely eliminated, and, since corrosive elements are blanketed and held within the bath proper, corrosion of nearby equipment is minimised.

ROAD VEHICLE INDUSTRY

Brisbane's First Automatic Buses

DELIVERY has now been made of the first of Brisbane City Council's £70,000 fleet of 10 Leyland Worldmaster buses—the council's first buses with fully automatic transmission. All are expected to be in service by Christmas. Assembled at Leyland's new headquarters plant in Melbourne, the chassis are being fitted with Freighter Lawton twin-door bodies, with aluminium side panels and plastics front and rear panels, seating 44 passengers. The floor is ramped down at the front and rear to reduce step heights at the two entrances, each entrance having power-operated folding doors. Another feature of the body design is the provision of horizontal slots under the front bumper bar so that cool air can be directed on to the brake drums. One of the new buses has been fitted with air suspension, so that the council can assess the suitability and benefits of this type of suspension under operating conditions in Brisbane.

New from Holts

OF four additions to the range of chemical compounds produced by Holts Products, Limited, New Addington, two are of special interest at this season of the year. Damp-Start is a liquid plastics waterproof sealer, packed in an Aerosol container, for spraying on to sparking plugs, h.t. leads, distributor cap and so on to obviate difficult starting caused by dampness and condensation. A second winter aid is De-Icer, which is already well known for its effectiveness in clearing ice-encrusted windscreens and frozen door locks and brake linkages, but it is now available in a pressurised Aerosol pack. Two further new products are Hi-Moly, a colloidal suspension of molybdenum disulphide for reducing friction in engine sumps, gearboxes and axles, and Battery Flush, which is designed to remove the lead-sulphate deposits from the plates of seemingly dead lead-acid batteries and thus give them a new lease of life.

Barimar Welding Service

ILLUSTRATED and described in a new booklet published by and available from Barimar, Limited, 22-24 Peterborough Road, London, S.W.6, are a wide variety of worn and damaged petrol- and diesel-engine parts that have been repaired at comparatively low cost by welding. Barimar was the originator of the scientific welding repair of vehicle engine parts over 50 years ago and now operates the biggest plant engaged in this work in Europe, if not in the world. Almost unbelievably damaged cast-iron, steel and light-alloy parts, apparently fit only for the scrap heap, are scientifically and quickly repaired, and all under the Barimar money-back guarantee.

Electronic Noise Locator

QUICK and positive location of unwanted noise, squeaks and vibrations in motor vehicles is claimed for an electronic sound locator developed by Qualitec (Engineers), Limited, High Wycombe. The instrument, which costs £24 4s., comprises a battery-powered transistor amplifier, a pair of headphones and two matched microphones. The microphones, one red and one green, are provided with long leads and magnetised spring jaws for attachment near the suspected source of the noise, or on flexible arms. The locator can also be used as a normal engineer's stethoscope.

Twin-steerers on the Continent and at home. Above, a Mercedes-Benz LP333 and trailer operated on a regular service into Switzerland by a Dutch firm have unpainted light-alloy coachwork by Decker and Sons, Leiden; below, an unusual eight-wheeler based on a Leyland O350-engined Dodge 7-tonner has a Primrose second steering axle added as well as the quite common additional trailing axle. With Kingswood (Bristol) light-alloy body and Edbro twin-ram tipping gear, it weighs about 6½ tons unladen; it is operated by Bradgate Quarries, Limited, Nunney, near Frome

Record Vauxhall Home Sales

DELIVERIES of Vauxhall cars and Bedford commercial vehicles to the home market this year have already passed the 100,000 mark. This is the first time that United Kingdom deliveries had reached six figures. Total home deliveries for 1958 were 70,700 vehicles.

Albion Price Reduction

A SUBSTANTIAL reduction in the price of Albion Chieftain goods chassis has been made by Albion Motors, Limited, which has increased production of the new Chieftain Series II range of 7-ton chassis to meet a heavy demand. Although the new Chieftain has a higher-powered engine of 94 b.h.p. and new refinements, such as a nitrided crankshaft, it will now be marketed in Britain at some £50 below the previous Chieftain.

Dunlop in Plymouth

REPLACING the old depot in Manor Street, a new £75,000 tyre depot, which will serve the counties of Devon and Cornwall, has been opened by Dunlop Rubber Co., Limited, at George Place, Plymouth. The new building is capable of accommodating the entire range of Dunlop tyres as well as wheels, rims, garage equipment and general accessories. Loading bays, stores, showrooms and tyre examination facilities are on the ground floor, while a suite of offices and further storage space are on the first floor.

Largest Tyre in the World

CLAIMED to be the largest tyre in the world, a 2-ton giant measuring 10 ft. high and 4 ft. wide was built recently by the Goodyear Tire and Rubber Company, Akron, Ohio. It sells for £5,000 and when equipped with its rim, also built by Goodyear, the total weight is 3 tons. It was built on an electronically-operated machine that covers 4,500 sq. ft. of floor space. The tyre-building machine and the 60-ton mould used to vulcanise the tyre cost more than $250,000. Developed for construction machines and other large vehicles still in design stages, these 44.5-45 nylon-cord tyres of 32-ply rating will be able to carry more than 30 tons at 30 m.p.h. with 35 p.s.i. pressure. Load capacity for the same tyre with a 50-ply rating will increase payload to more than 40 tons at better than 50 m.p.h.

Transfer Demister

TO banish the bogy of steamed-up vehicle windows, the Gnomist Co., Ltd., has just introduced a low-cost demister which is applied as a transfer. The Gnomist transfer consists of a sheet of PT 300 Cellophane film treated by a secret chemical process. When attached to glass, the highly transparent film remains for all practical purposes invisible, yet is said to prevent misting in the most extreme conditions of temperature contrast and humidity for at least two winters, if treated with reasonable care. The transfer measures 15 in. by 9 in.

In-Situ Flaw Detection

USED for many years in the aircraft and other industries, the Ardrox 996 flaw-detection process is now being packed by the manufacturer, Brent Chemical Products, Limited, Brentford, in Aerosol pressurised spray dispensers. This method of packing makes it possible to carry out checks of such components as connecting rods, camshafts, cylinder heads and other parts without dismantlement. The new pack is available as a complete flaw-detection kit at £7 10s. or as a set of three dispensers containing penetrant, penetrant remover and developer at 33s. 1d. per set.

Free Leak-Warning Device

AN interesting and useful side-effect in the use of Castrol anti-freeze serves as a warning of coolant leaks. The anti-corrosion additive exclusive to Castrol anti-freeze is of a powder composition instead of the usual viscous fluid. If there is a weakness in the cooling system, this additive will cause a white deposit at the leaking joint. The deposit is said not to be in any way harmful and is completely and easily removed with a wet rag. There has been a reduction in the price of Castrol anti-freeze this year, a quart tin for example now costing 1s. less than previously.

Does your Engine waste £1 a day?

BARIMAR can save this by repairing your cracked, worn and burnt Valve Seatings

If motor-owners would only realize it, every cracked, worn and burnt valve seating wastes money, squanders fuel and reduces engine efficiency, and that a Barimar Scientific Welding repair to a defective valve seating is a sound engineering job that can save a loss of up to twenty shillings a day!

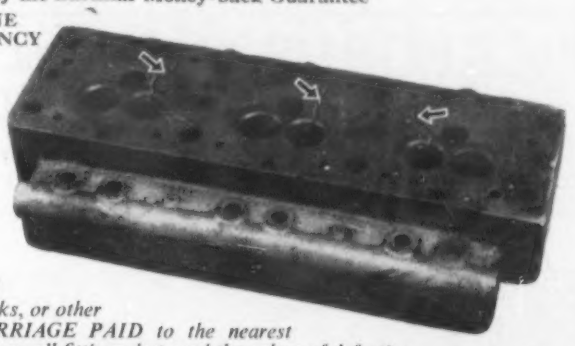
A Barimar Scientific Welding repair builds up the damaged seating with new special wear- and heat-resisting metal, the seating perfectly re-machined, and the completed job returned to the owner within three days, *efficient as a brand-new* cylinder head or block.

BARIMAR SCIENTIFIC WELDING REPAIRS TO CRACKED, WORN & BURNT VALVE SEATINGS OFFER THESE OUTSTANDING ADVANTAGES

1 A Barimar repair saves you money on mileage
2 A Barimar repair saves time
3 A Barimar repair is the answer to overheating, and, above all else,
4 A Barimar repair is fully covered by the Barimar Money-back Guarantee

GIVE YOUR ENGINE RENEWED EFFICIENCY

Send that Cylinder Head or Block with DEFECTIVE Valve Seatings to Barimar, and be sure of A FIRST-CLASS thoroughly dependable repair returned within 3 days!



Consign the damaged cylinder head, and blocks, or other parts, for repair CARRIAGE PAID to the nearest Barimar address. Remove all fittings, but send the valves of defective seatings, with heads and blocks, and advise dispatch. When damaged parts cannot be transported, Barimar "Flying Squads" will operate ON THE SPOT.

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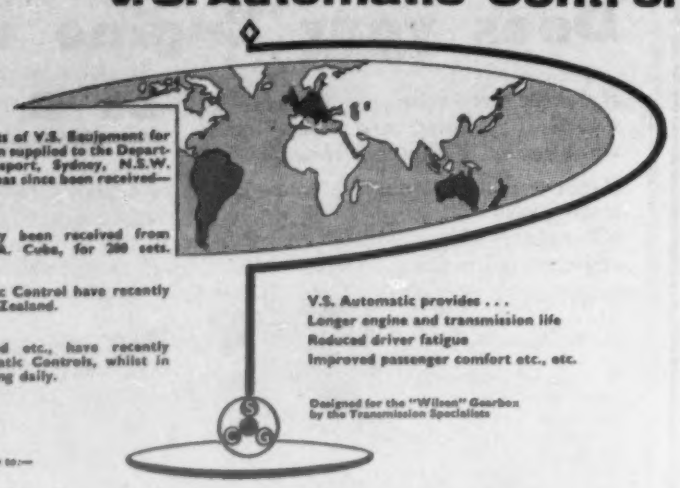

FROM AUSTRALIA
One hundred and seventy sets of V.S. Equipment for bus service, have recently been supplied to the Department of Government Transport, Sydney, N.S.W. A repeat order for fifty sets has since been received—proof of satisfaction.

FROM S. AMERICA
Another order has recently been received from Omnibus Metropolitanos S.A. Cuba, for 200 sets.

FROM NEW ZEALAND
Thirty sets of V.S. Automatic Control have recently entered into service in New Zealand.

FROM THE CONTINENT
Germany, Belgium, Holland etc., have recently ordered sets of V.S. Automatic Controls, whilst in Gt. Britain sales are increasing daily.

V.S. Automatic provides . . .
Longer engine and transmission life
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Designed for the "Wilson" Gearbox by the Transmission Specialists

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Thousands of tons of chocolate travel by train. Every night many hundreds of wagons leave chocolate factories up and down the country and are speeded on their way to the shops or for export by British Railways Express Freight Services. A lot of the chocolate goes to stores specially provided at or near the stations where it is held available in perfect condition for immediate distribution. There are more than 800 Express Freight trains time-tabled every weekday, many giving next-morning arrivals over long distances. From many towns British Railways Export Express services give assured next-morning delivery for wagon load traffic to London Docks (Royal, India and Millwall Groups), Merseyside, Manchester, Goole, Grimsby, Hull, Southampton, Glasgow and Grangemouth. Charges are fully competitive: ask your Goods Agent for details.

BRITISH RAILWAYS

MODERN FREIGHT SERVICES

STEELWORKS MODERNISATION

Steel, Peech and Tozer £10 Million Scheme

ALL existing open-hearth steel melting furnaces operated by Steel, Peech and Tozer, Rotherham (a branch of the United Steel Companies, Limited), are to be replaced by six electric arc furnaces of 110 tons capacity each at a cost of £10 million. When completed in about five years' time, this will be the largest electric steelmaking plant in the world, with an annual capacity of 1,350,000 ingot-tons of steel. It is also the largest single development in the branch's 80-year history.

At the present time there are 21 open-hearth furnaces at Steel, Peech and Tozer—14 in the Templeborough melting shop and seven in the Rotherham melting shop—producing approximately one million ingot-tons of steel a year. The existing Templeborough melting shop is to be adapted to house the new electric furnaces. This will mean the disappearance of a well-known local landmark with the demolition of the 14 120-ft. high chimneys for waste gases, although the present size and shape of the building will remain substantially as it is now. The Rotherham melting shop will be demolished entirely.

In Commission in 1963

Initially, four electric furnaces of the swing-roof type will be installed, and it is planned to have the first of these in commission by January, 1963. In order to make a start on the plant, however, the first two open-hearth furnaces at the Sheffield end of the Templeborough melting shop will close down in two years' time, to be followed by others as the scheme progresses. Arrangements have already been made to maintain the existing level of steel production during the changeover by fitting double oil burners to some of the furnaces and converting others to "all-basic" refractory linings.

No order has yet been placed for the supply of the electric furnaces, but almost everything apart from the electrical equipment is to be manufactured by Distington Engineering Co., Limited, a United Steel subsidiary.

Electrical Power Requirements

Negotiations with the electricity supply authority for the supply of power have not yet been concluded but the power requirements of the new plant will be 750 million units a year—six times the amount used by the whole works at present, and over one-third of the existing industrial load in the Sheffield area. A new electrical sub-station is to be built near to the company's Brinsworth mill, which will take power at 275,000 volts from the super-grid.

The changeover from the open hearth to the electric arc process will entail the provision of new steam generating equipment, as all the existing waste heat boilers will become redundant.

Part of an order for 76 trains for the Piccadilly Line of London Transport under construction at the Midland works of Metropolitan-Cammell Carriage and Wagon Co., Limited. The first of these aluminium-finish trains went into service on December 14; others will follow at the rate of one a fortnight

Conveyancer

The largest range of materials handling equipment has been further extended by the recent addition of lifting platforms of 1 ton, 2 ton and 10 ton capacity.

Petrol, diesel and electric fork trucks with capacities from 2,000-7,000lb. (including flameproof versions and reach trucks) with attachments for handling all types of loads plus the "Shorland" range of straddle carriers and special purpose equipment cover all aspects of materials handling.

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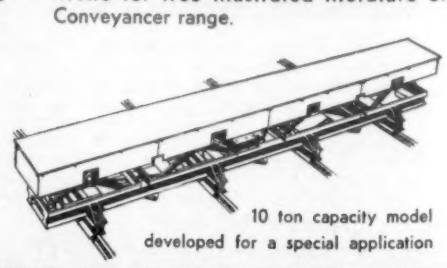
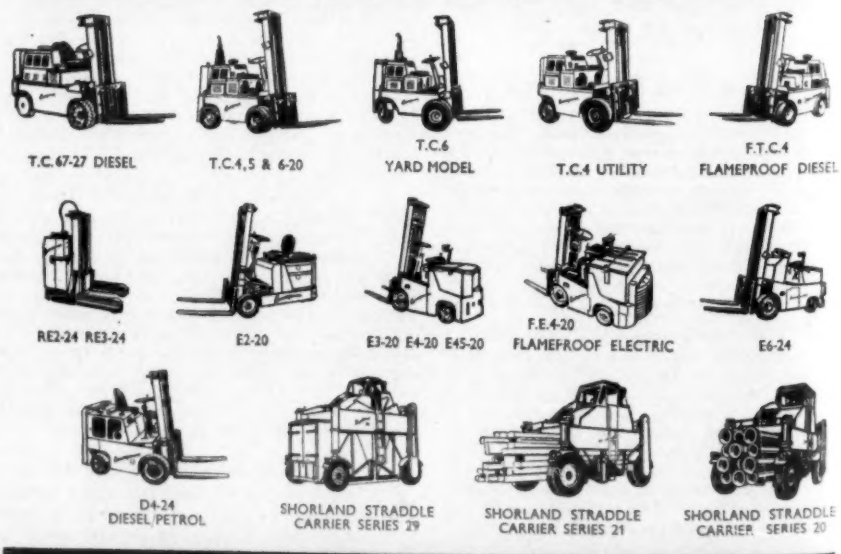
1-2 ton capacity lifting table



10 ton capacity model developed for a special application



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SOCIAL AND PERSONAL

I.C.A.O. Award

THE council of the International Civil Aviation Organisation has voted unanimously to bestow the first Edward Warner Award, given for "outstanding contributions to the development of international civil aviation," posthumously on Dr. Albert Plesman, founder and long-time president of KLM Royal Dutch Airlines. The award, which commemorates Dr. Edward Warner, I.C.A.O. council president from 1945 to 1957, consists of a gold medal and will be awarded once every two years. The citation commends Dr. Plesman thus: his "initiative and foresight as a pioneer, coupled with his great creative and organising ability, resulted in the formation of an international airline at a time when there were few indeed who had faith in such an undertaking. They were instrumental as well in establishing the International Air Traffic Association, the forerunner of the present I.A.T.A., an institution in which Dr. Plesman played a leading role. Above all he helped to shape the future, inspiring others by his example to act upon the belief, now inscribed on his memorial in The Hague, that 'The Air Ocean Unites All Peoples'."

* * *

Mr. G. Roberts (46) has been appointed superintendent, air ferry, Silver City Airways, in succession to Mr. R. G. Macrae.

* * *

Mr. W. O. Reynolds, who has been appointed planning officer, Euston, London Midland Region, B.R., was previously assistant (passenger services) in the chief operating superintendent's office, London Midland Region. He began his railway career on the L.N.E.R. in 1933, was appointed a traffic apprentice in 1936 and at the conclusion of his training took up the position of assistant to the district superintendent, Manchester, in 1939. He served in the Royal Engineers and was demobilised in 1946 with the rank of lieut.-colonel, was awarded the M.B.E. and was twice mentioned in dispatches. Appointed assistant to the district superintendent, Stratford, in 1946, Mr. Reynolds moved to a similar position at Doncaster the following year and was made assistant district superintendent, Lincoln, in 1948, and assistant district operating superintendent, Nottingham, in December of the same year. In 1949 he became assistant district operating superintendent, Doncaster, followed by the position of district operating superintendent, Fenchurch Street, in 1952. He was appointed in the same capacity at Leeds City, in February, 1954, and moved to Euston as assistant (freight services) early in 1956. His penultimate appointment was given him in 1957.

Mr. W. O. Reynolds

* * *

The Minister of Transport has appointed Messrs. T. H. Laing and R. J. Badcock to be members representative of agriculture on the Transport Users' Consultative Committee for the South-Western Area.

* * *

Formed in 1955 by employees of East Yorkshire Motor Services, Limited, so that those with 25 years' service and over could have an annual get-together and chat about old times, the E.Y.M.S. "25" Association has increased its membership from 80 to 133 persons. This was made known at the fifth annual dinner in Hull last weekend by Mr. L. W. Simpson, the chief engineer.

* * *

At the last meeting of the Mersey Docks and Harbour Board, the resignation of Colonel Sir Geoffrey Beazley, M.C., T.D., D.L., was announced. The chairman of the Board, Mr. M. Arnet Robinson, said that Sir Geoffrey, the senior member—he was elected in 1928—had served on all committees. He was appointed chairman in 1950, which office he held for four years, and his services were recognised by the conferment of a knighthood in 1954.

* * *

A novel quiz competition, arranged by the British Transport Commission, will be among the attractions at the Schoolboys Own Exhibition which opens at Olympia, London, on December 28. The competition, entitled "Just the Ticket," will follow the screening of B.T.C. films. A popular sporting, television, radio or stage personality will put questions on railways, road haulage, docks and waterways to members of the audience chosen by ballot. The winners will receive prizes and tickets for a special final quiz for more valuable prizes.

* * *

Mr. F. J. Slee, a well-known personality in the oil industry, has retired as joint lubricants manager, Shell-Mex and B.P., Limited, after 36 years' service. He played a large part in the development of the company's lubricants business, particularly in the sphere of industrial lubricants. A graduate of both Cambridge and London Universities, his early experience was gained in the Air Ministry oil laboratories and in the general engineering and road haulage businesses. He joined Shell-Mex, Limited in 1923. Mr. L. H. Coney, who joined Mr. F. J. Slee as joint manager of lubricants department in 1954, is now the manager of the department.

* * *

The 24th annual dinner of the Transport Golfing Society was held in London on December 10, with the president, Major R. M. ("Bon") Cole, M.C., in the chair and nearly 600 members and guests present. The menu had as frontispiece a cartoon of the president sitting under a palm tree in Cuba, with a bus at his feet—subtle reference to a recent successful order. Sir Robert Cary, Bart., M.P., proposed "The Transport Golfing Society," to which the president responded. Presentations were made to members—the president's prize went to Messrs. J. S. Lees and J. Henderson for the best score during the year and the prize for the best individual performance over three meetings to Mr. T. Field-Rayner. "The Guests" was proposed by Mr. K. Goring-Felton, junior vice-president, T.G.S. (London area) and the reply was from Mr. Raymond W. Birch. The president's health was drunk on the proposition of Councillor Norman Harris, the senior vice-president. The orchestra of the Irish Guards played during dinner, with fanfares composed by the director of music, Major C. H. Jaeger. Mr. Arthur Askey provided entertainment later.

Mr. A. C. Young has been appointed traffic superintendent, Torbay and Newton Abbot area of the Devon General Omnibus and Touring Co., Limited.

* * *

Aldershot and District Traction Co., Limited, announces that Sir Harold Emmerson, G.C.B., K.C.V.O., has been appointed a director of the company, in the place of the late Mr. W. P. Allen. Sir Harold was, until his recent retirement, Permanent Secretary, Ministry of Labour and National Service.

* * *

The Minister of Transport has appointed Lieut.-Colonel Donald Cameron of Lochiel, T.D., a nominee of the British Transport Commission, to be a member of the Transport Users' Consultative Committee for Scotland until April 30, 1960, in place of Capt. Sir Ian Bolton, Bt., K.B.E., who has retired from the Commission.

* * *

Mr. M. W. Astle-Fletcher, B.Sc. (Hons.) Physics, has been appointed principal scientific officer, electrical engineering department, B.R. Central Staff. Mr. H. M. Pearson, hitherto assistant (special purposes), chief civil engineer's office, Waterloo, Southern Region, has been appointed assistant (works) in the civil engineering department.

* * *

Mr. R. A. Savill, E.R.D., A.M.Inst.T., as already recorded, has been made district commercial officer, Sheffield, Eastern Region, B.R. Mr. Savill was educated at Charterhouse and at the outbreak of hostilities in 1939 was on the point of commencing university studies at Oriel College, Oxford. Instead he volunteered for service with H.M. Forces and was shortly afterwards commissioned in the Cheshire Regiment with which he later served in North Africa and Italy, attaining the rank of major. On returning to this country in 1946, he joined the former Southern Railway as a cadet and, after three years' training in all departments, occupied various positions at Southern Region headquarters at Waterloo before transferring to York in 1951 in charge of the North Eastern Region's freight commercial research section. In 1953, after acting temporarily as assistant district commercial superintendent, York, for nine months, Mr. Savill was appointed passenger and parcels agent, York, and, in 1955, returned to North Eastern Region headquarters and a year later was appointed assistant to commercial officer (mineral), the post which he now vacates. Mr. Savill rejoined the Army Emergency Reserve (Transportation branch) on its re-formation in 1948 and now commands 19 Railway Regiment, Royal Engineers (AER), (Eastern and North Eastern Regions), with the rank of lieut.-colonel. He has for some years also been keenly interested in transport education and from 1951 to 1957 lectured in transport subjects at York Technical College evening classes. He is a member of the examinations committee of the Institute of Transport.

Mr. R. A. Savill

* * *

The Southern Region Lecture and Debating Society Easter tour next year will be to the Dutch bulb fields and the Netherlands Railway Exhibition at Utrecht. The dates are April 28-May 3, 1960.

* * *

Mr. B. G. Stacey has been appointed chief engineer of Dennis Brothers, Limited. He was previously with the Birfield Group of companies. His predecessor at Dennis, Mr. T. W. Tillson, has been made chief engineer of Shelvoke and Drewry, Limited.

Mr. D. C. Brown, chief mechanical engineer of the Crown Agents for Oversea Governments and Administrations, recently visited East Africa. He is seen here in the E.A.R. mechanical workshops at Nairobi

Forthcoming Events

December 21.—Institute of Transport. Annual general meeting of corporate members. At 80 Portland Place, W.1. 5.45 p.m.

December 29.—Institute of Transport (West Middlesex). Paper by Mr. Thomas T. Carter, "Air Transport from the Pilot's Point of View." At Control Tower Building, London Airport Central. 6 p.m.

December 30—January 9.—National Boat Show. At Earls Court.

January 4.—Institute of Traffic Administration (Kent and South East). Paper by Mr. E. J. Cresswell, "Traffic Administration." At Wig and Gown Hotel, Maidstone. 7.30 p.m.

Industrial Transport Association (Merseyside). Discussion. At Liverpool Corporation Passenger Transport Offices, Hatton Gardens, Liverpool. 7.15 p.m.

January 5.—South Wales and Mon. Railways and Docks Lecture and Debating Society. Paper by Sir Leslie Ford, "The Port of London Revisited." At Angel Hotel, Cardiff. 6.30 p.m.

Railway Correspondence and Travel Society (West Midlands). Paper by Mr. E. S. Tonks, "Red Earth and Green Engines." At 64 Holyhead Road, Coventry. 7.30 p.m.

Institute of Road Transport Engineers (Western). Paper by Mr. J. Langdord-Allen, "The Use of Plastics in Road Transport." At Royal Hotel, Bristol. 6.30 p.m.

January 6.—Institute of Petroleum. A symposium, "Flow Prospects of Admiralty Fuel Oils." At 61 New Cavendish Street, W.1. 5.30 p.m.

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IMPORTANT CONTRACTS

Diesel-Hydraulic Shunters for B.T.C.

AN order has been placed by the British Transport Commission with Yorkshire Engine Co., Limited (a subsidiary of the United Steel Companies, Limited) for 10 170-h.p. diesel-hydraulic shunting locomotives. Delivery will take place in 1960 and the locomotives will be used on the London Midland Region of British Railways, principally in the Manchester and Liverpool dock areas. This is Yorkshire Engine Company's first order for diesel locomotives as main contractor to the B.T.C., although it recently erected 10 800-h.p. diesel-electric engines as sub-contractor to the British Thomson-Houston Company, and has built many steam locomotives for British Railways. The diesel-hydraulic locomotive has been developed in collaboration with Rolls-Royce, Limited, which company's engine and torque converter it uses. The three-stage converter provides a speed range of 0 to 18 m.p.h. without gear-changing.

Buildings for Warri Dockyard

Sanders and Forster, Limited, a member of the Chamberlain group of companies, has just secured a substantial order for S. and F. clear portal standard buildings for use in the Warri Dockyard contract in Nigeria. The main contractor is Gammon (Nigeria), Limited, and the consulting engineers are Messrs. Coode and Partners.

Record-Length Ferodo Stairtreads

Ferodo, Limited, recently shipped to South Africa the longest one-piece non-slip stairtreads ever to leave Britain. Measuring 34 ft. in length, they are for Witwatersrand University, Johannesburg, supplied through Dowson and Dobson, Limited, Johannesburg. The normal way of dealing with a long stair is to use butt-jointed stair-treads 13 ft. 6 in. long. The production of lengths over this size presents manufacturing difficulties and is expensive.

Eccleston Bridge Inquiry Office

London Transport has placed a contract with Whyatt (Builders), Limited, London, S.W.16, for a public travel inquiry office and shelters for Green Line coach passengers at Eccleston Bridge, Victoria. Eccleston Bridge is at present being partially reconstructed and temporary Green Line stops are in use at Elizabeth Bridge nearby. The opportunity is being taken by London Transport to provide new passenger amenities of an improved standard at the busy Eccleston Bridge, from which there are normally over 500 coach departures a day.

English Companies to Build Tasmanian Bridge

Preliminary advice has reached us that the Tasmanian Government has accepted a tender from two English companies to construct a new bridge over the River Derwent near Hobart. The successful tenderers are Reed and Mallik, Milford Manor, Salisbury, and the Braithwaite Company, London, S.W.1. The bridge, a high-level four-lane structure on piles, will replace Hobart's famous floating arch bridge of concrete pontoons which, after 16 years, is now nearing the end of its useful life. Work on the new bridge is expected to start early next year and take about three years.

Big Polish Order For Perkins

Perkins Engines, Limited, announced at Smithfield Show that it had received an order for 100 six-cylinder agricultural diesel engines from Poland. The order is one of the largest to be placed by Poland with a British company since the war. The engines—Perkins P6 units developing 65 b.h.p. at 2,000 r.p.m.—will be fitted in Polish-built Vistula K2B-3 self-propelled combine harvesters. About 50 similar Perkins engines have been fitted in this combine and a number are operating in Greece and the Middle East; Poland bought 50 Perkins R6 engines last year for fitting into commercial vehicles.

Gardner November Sales

During November, Norris, Henty and Gardners, Limited, received orders for over 350 Gardner automotive engines, LWs and 6LXs, from leading chassis manufacturers in this country. In addition, orders were received for 84 rail traction engines, of which 68 are destined for shipment to South Africa for incorporation in light locomotives to operate in diamond and uranium mines. Orders were also received for over 100 engines for installation in earth moving machinery, trenchers, air compressors and other road-making machinery. Many 6LX, LW and L3 marine propulsion engines were also ordered.

More Atlanteans for Maidstone

A fourth repeat order has been received by Leyland Motors, Limited, from Maidstone and District Motor Services, Limited, for rear-engined Atlantean double-deck buses and a first order has been placed by Birmingham City Transport for the type. Maidstone, which has been operating a fleet of these buses in the Hastings area for the past six months, has ordered another 20, bringing its total to 95 buses; Birmingham has ordered an Atlantean with 72-seat M.C.W. bodywork. To date, orders totalling over £3 million have been placed by 29 British operators, including 13 municipalities, for this large-capacity bus.

TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

December 22—Ceylon.—Ministry of Food, Commerce and Trade for 10 5-ton diesel LORRY CHASSIS. Tender forms from the Food Commissioner, 330 Union Place, Colombo.

December 28—Portugal.—Transportes Colectivos do Porto for five DOUBLE-DECK BUSES. Specifications can be obtained from the Estacao de Autocarros da Carceireira, Rua de Pedro Hispano, Oporto.

December 30—India.—Madras Port Trust for two FIRE TENDERS. Photocopies of tender documents from Export Services Branch, B.o.T., price 18s. (ESB/28800/59.)

January 7—Costa Rica.—Costa Rican Electrical Authority for 316 HEAVY DUTY TYRES of various sizes. Photocopies of tender documents from Export Services Branch, B.o.T., price 1s. (ESB/28808/59.)

January 20—Irish Republic.—Coras Iompair Eireann for 36 DIESEL LOCOMOTIVES and 14 sets of ENGINES and TRANSMISSIONS of various powers and types. Specifications, etc., from the Chief Engineer, Coras Iompair Eireann, Inchicore Works, Dublin, with deposit of £10. (ESB/26107/59.)

Export Opportunity—United States of America.—Dongieux's Incorporated, 145 Lorenz Boulevard, Jackson 5, Mississippi, has informed the British Consulate-General at New Orleans that it would like to get in touch with United Kingdom manufacturers of ELECTRIC DELIVERY VEHICLES suitable for dairy products, bakeries, dry cleaning and laundry. (ESB/28772/59.)

SHIPPING and SHIPBUILDING

Automatic Transit of Panama Canal

FOR the more efficient transit of ships through the Panama Canal a digital computer is to be installed at Balboa during the next 2-3 years. It will form part of a semi-automatic marine traffic control system. The computer will produce three schedules representing the three best methods of transiting a given number of vessels through the Canal, from the economic standpoint and those of the Canal undertaking and the shipowners.

Some of the factors to which the system will give consideration both for ships desiring to enter the Canal and those already making the transit are size, clear-cut requirements, tug requirements, tandems, speed, manoeuvrability, lock locomotive requirements, special priorities, lock lanes in service, weather conditions and many others. Economic evaluation of the several schedules will take into account such things as lock crew time and overtime, pilot time and overtime, cost time for each ship, and locomotive and crew costs.

"Caronia" in the Black Sea

IT is announced that the Cunard liner *Caronia* is to make a cruise to Mediterranean and Black Sea ports in 1960. The 34,172-ton liner, which is completely air-conditioned, will call for the first time ever at the Rumanian port of Constanta on the Black Sea. She will also call at the Russian ports of Yalta and Odessa and at Istanbul in Turkey.

World Statistics

DURING the 12 months up to June this year there was a net addition to world shipping of 6,902,000 tons gross, according to Lloyd's Register. Liberia, Norway and Japan continued to show the most rapid expansion. The U.K. fleet stood at 20,757,000 tons, a net increase of 471,000 tons. Apart from the U.S.A. reserve fleet, some nine million tons of shipping is laid up.

Development of Shipping in Pakistan

THE Government of Pakistan has accepted the Maritime Commission's suggestion to subsidise the construction of prototype ships of approved specification. Subsidising shipbuilding and the merger of small shipping companies into economic units are the highlights of the Commission's recommendations. The Commission observed that the existing shipbuilding facilities at the Karachi Shipyard were not being fully utilised and that the cost of construction was high. Further additions and replacements in the merchant navy would be through new Pakistan-built ships.

B.I. Tanker Launching

THE 37,000 tons deadweight oil tanker *Ellenga*, building at the Wallsend shipyard of Swan, Hunter and Wigham Richardson, Limited, for the British India Steam Navigation Co., Limited, was launched on November 28. The *Ellenga* is the second of three tankers of this class building with the Wallsend yard, and will commence service next year under charter to the British Petroleum Co., Limited. Her general particulars are: length between perpendiculars, 660 ft.; breadth moulded, 90 ft.; and designed speed on service fully loaded, 16 knots.

Dundee Yard Causes Concern

LAST weekend there was a meeting in Dundee between Mr. John Strachey and Mr. G. M. Thomson, the two Labour M.P.s, and representatives of the shipbuilding unions and the management of the Caledon Shipbuilding Co., Limited, concerning the future of the shipbuilding industry in the city. There are now two empty berths at the yard. A statement issued after the meeting said that Mr. G. C. Parker, the managing director of the Caledon company, had stated there was no intention of any deliberate closure of the yard. They were seeking new orders. Some 1,250 men were employed compared with 1,500 a year ago. It had been agreed to set up a joint committee of the Confederation of Shipbuilding and Engineering Unions and the management to go into labour relations. The M.P.s are to see Admiralty ministers about naval orders, and Mr. Strachey is to see the Polish Ambassador this week about possible orders from Poland. The two M.P.s are also to press the idea of a "slum clearance" scheme for old shipping.

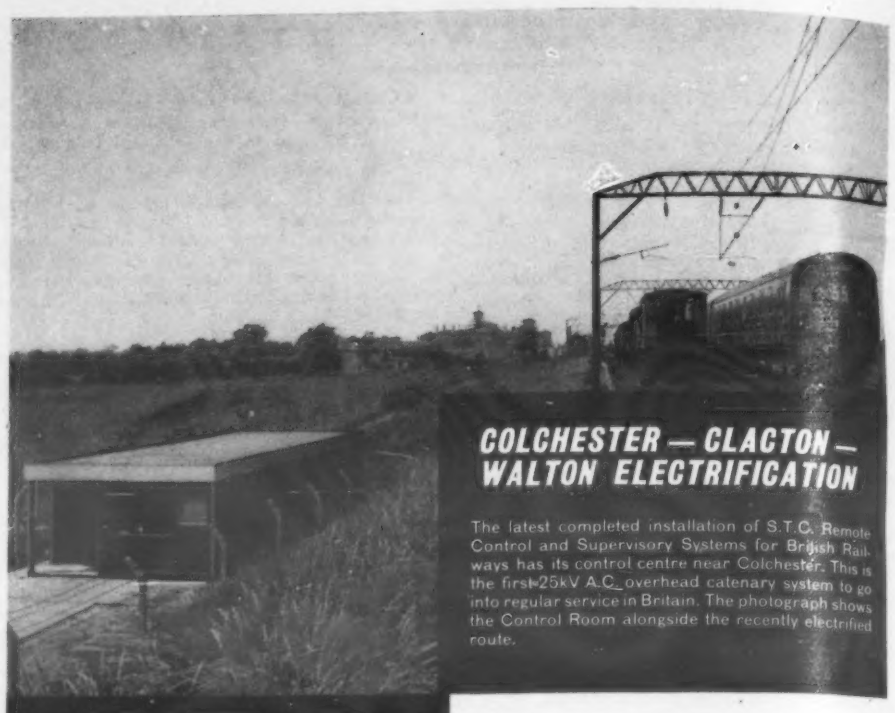
s.s. "Mobil Acme"

THE turbine-driven single screw oil tank steamship *Mobil Acme* is the first of two vessels being built by Alexander Stephen and Sons, Limited, at Linthouse, Glasgow, to the order of Mobil Tankships, Limited. She is 525 ft. overall and has a deadweight of 19,000 tons and a service speed of 15½ knots. The general layout from forward is—fore peak, forward deep tanks for the carriage of fuel oil or water ballast, forward pump room, cofferdam, two longitudinal bulkheads giving 27 cargo oil compartments, main cargo pump room at centre with oil fuel bunkers at sides, engine and boiler rooms and aft peak tank. A fore and aft gangway extends from the pump room entrance house top to the bridge deck. Seven different types of oil cargo can be carried simultaneously.

An air conditioning system has been fitted in the officers' accommodation and a system of mechanical ventilation provided for the crew accommodation. Both schemes are by Thermotank, Limited. A feature of the ventilation systems which has been incorporated at the owners' request is that air from the cabins is discharged through a baseboard grid and led behind the ship's side lining and ceiling to discharge into the passageways. Awnings have in general been omitted and the accommodation has been air conditioned and insulated to compensate for Ministry of Transport requirements.

French Railways left its Piccadilly office on December 7 so that the premises can be rebuilt. Its address is now 10 Haymarket, London, S.W.1, and the telephone number Whitehall 3822.

There are few countries in the world to which fire extinguishers manufactured by Nu-Swift, Limited, Elland, Yorkshire, are not exported, while many large companies and official bodies both in this country and abroad have standardised Nu-Swift equipment. Among recent large installations have been Shell-Mex House, Strand, London, Montego Bay Airport and Tower Isle Hotel, Jamaica, the new 16-storey Geigy building in Basle, Switzerland, all Danish State Railways international coaches, the Alfa-Romeo works in Italy and the underground S.A.A.B. factory in Sweden.



COLCHESTER — CLACTON — WALTON ELECTRIFICATION

The latest completed installation of S.T.C. Remote Control and Supervisory Systems for British Railways has its control centre near Colchester. This is the first 25kV A.C. overhead catenary system to go into regular service in Britain. The photograph shows the Control Room alongside the recently electrified route.

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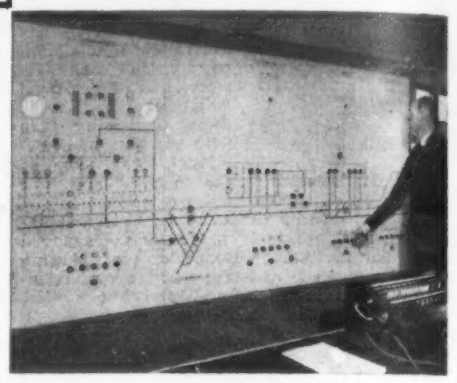
S.T.C. Remote Control and Supervisory Systems are being used by British Railways for power distribution control on supply networks for the new 25 kV A.C. electrification programme. The systems provide instantaneous remote control of feeder stations from a central point and include facilities for monitoring transmission channels. Telemetering of local conditions to the Control Room and immediate display of fault locations are also provided by the equipment.



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